SUPPLEMENT

TO

PLACIDUS DE TITUS;

CONTAINING

THE NATIVITY OF THAT WONDERFUL PHÆNOMENON,

OLIVER CROMWELL.

Calculated methodically, according to the PLACIDIAN CANONS,

By the Ingenious

Mr. JOHN PARTRIDGE, M.D.

TO WHICH IS PREFIXED,

PRIMUM MOBILE,

OR

A COMPLETE SET OF ASTRONOMICAL TABLES,

FOR THE

EXACT CALCULATION AND DIRECTION OF

NATIVITIES.

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M.DCC.XC.

BRITISH MUSEUM

SUPPLEMENT, &c.

Oliver Cromwell,

LORD PROTECTOR OF ENGLAND,

BORN AT HUNTINGDON, APRIL 25,

1 Hour, 24 Minutes, 4 Seconds; Mean Time 1599.

LENGTH of LIFE.

IN this nativity the ☽ is hyleg, angular in △ to the ☉ and ☿ in ⚹ to ♃, and alſo in reception with ☿; beſides theſe we find the ☉ and ☿ in ⚹ to aſcendent, and in ⚹ to ♃ alſo; and ſhe in her exaltation in ♋, and no ill rays of ♄ and ♂ any way afflicting either the ☉, ☽, or aſcendant; ſo that we may rationally conclude the native was deſigned by nature for a healthy long life, but on which there can be no certain judgment given, becauſe the number of years depend on the anaretic point. But yet if there be no arguments of a long life by poſition, I ſhould be very ſparing in his number of years, the arguments of long life are ſuch good rays and poſition that corroborate and fortify the giver of life, and this the more when the hyleg is naturally ſtrong and well placed in the figure.

UNDERSTANDING and JUDGMENT.

Mercury is as ſtrong as in any figure I have ſeen; for here ☿ is juſt paſt the ☌ of the ☉, and in his Oriental accidentality, increaſing in light and motion in reception with the ☽; but that which is the moſt material is the ☽ in △ to ☿, and ⚹ to ♃; and what is more, ♃ alſo beholds him by a mundane ſquare, ſo that they are really configurated, both in *zodiaco* and *mundo*; and beſides, we find him in a fixed ſign in the houſe of ♀, and in a zodaical parallel with ♀, in ⚹ to the aſcendant. Theſe poſitions muſt be allowed to give all the great and excellent qualifications that are requiſite to make a ſtateſman and a ſoldier; here is no raſhneſs, but reſolution upon deliberate conſideration; here is no timidity, nor yet unſteadineſs in judgment; here is no dulneſs nor ſolidity, but a natural and native ſharpneſs of fancy at all times: in a word, the ☽ in ♍ in △ to ☿ in ♉ is, without doubt, the moſt agreeable poſition to make a good, quick, apprehenſive fancy and judgment.—*Multum enim ad animæ proprietates ſigna conferunt in quibus ☿ & ☽ verſantur, multum & ſtellarum adſpectus ad ſolem & ad Cardines, & natura cujus libet planetæ congruens* *certis inclinationibus animæ, Quadripartite Ptolomæi.* Lib. iii. Cap. 18.

RICHES.

The ⊕ about 2 degrees diſtant from the cuſp of 6° in ♋ in * to ♀, diſpoſed of by ☽ and ♃, all which are ſtrong and potent, and do certainly promiſe riches, and plenty of the things of fortune, and this by various ways and means; and I am of opinion, it being in ♋, a tropical ſign, doth not a little add to the advantage. Ptolemy ſays ♃ *per fidelitatem præfectuas*, &c. that when ♃ gives his aſſiſtance, he doth it by places and offices of truſt, command and rule, &c. and though he doth not ſay it, yet I judge the ☽ in △ to the ☉ and ☿, give the ſame things as relate to dominion; and therefore from theſe and ſuch like things we ſhould judge, he ſhould grow rich and increaſe his eſtate. But then we find the ⊕ is in an exact zodaical parallel with ♂, and is alſo going to his mundane parallel, this gives damage and loſs to his eſtate; and why may not this be the waſting of his eſtate and fortune in military ſervice at the beginning of the wars, and afterwards too. Ptolemy ſays, ♂ *ex militia & gubernatio exercituam*; and though he did increaſe his fortune, as he advanced in honour, yet I believe he left nothing at his death, large, unleſs debts.

debts. Beſides theſe we find ♂ in the ſecond ſtrong, and alſo lord of the ſecond, but in ☍ to ♄ and □ to ♃; this ſhewed he would gain much and advance mightily, but it would be by violence, force, and with ☍ too. But whenever you find ♂ ſtrong in the ſecond, the native always gets much; *per fas aut nefas*; he cares not which way, and ſeldom parts with it again as long as he lives.

BROTHERS and SISTERS.

This from the cuſp of 10 and 11 with ♀ by day, and the ☽ by night, the ſign ♐ doth poſſeſs both the cuſp of the 10th and 11th, and ♃ the lord of it in ♋, a fruitful ſign; and in ⚹ to the ☉ and ☽, but in □ to ♄ and ♂, and both ♄ and ♂ are in ☍, and caſting their □ to the cuſp of the 11th houſe. Theſe poſitions ſeem plainly to ſhew he had one brother, and two ſiſters; but not all ſhall live to years of diſcretion and riper age, but do think the ⚹ of the ☉ and ♃ ſhould give one that might live to ſome conſiderable age. But the □ of ♃ to ♄ and ♂, and their □ alſo to the 11th houſe, ſhould ſhew that their agreement was but indifferent, and that the reſt of his conſanguineal relations (children excepted) ſhould not have an extraordinary intimacy and kindneſs one for another; neither ſhould they indeed agree in reality,

though

though in his poſt and quality his power commanded it.

FATHER and MOTHER.

I do not think it amiſs to take notice of the 4th and 10th houſes in conjunction with the ☉ and ♄, ☽ and ♀, becauſe I find Ptolemy calls the 10th houſe *Locus Maternus*.

In this native's radical figure we find both the ☉ and ☽ moſt excellently fortified by the good beams of the benefic ♃; and beſides they are alſo in △ to each other from ♉ and ♍; the ☽ is the ſtronger of the two, as being angular, increaſing in light, and in parallel as well as ✱ with ♃, who is in ♋, his exaltation, direct, and increaſing in motion. But the ☉ is in ♉ among violent ſtars, cadent ſlow in motion, and only in ✱ to ♃ in zodaico, but in □ to *mundo*; and if we add to theſe ſignificators, the lords of the 4th and 10th houſes, which are ♃ and ☿, we ſhall not find any thing conſiderable to alter the judgment of the ☽, ☿, and ♃, being far ſtronger than the ☉, ☿, and ♄; from it, it is natural to judge, the natives parents were moderately healthy and long lived, and that the father was the more healthy, but the mother the more durable and longer liver; that ſhe was ſubject to the ſpleen and vapours, becauſe the ☽ is in a parallel to ♂, and ♃ in □ to ♄ and ♂; that ſhe was

ſubject

ſubject to obſtructions of the lungs, hypoconders, and ſtomach; and though I have been ſo favourable to the old mumpſimus of the 3d and 4th houſes as not to condemn it, yet I can ſay that this doctrine of the great Ptolemy is moſt conſonaneous to nature, and what I can experimentally juſtify in ſome hundreds of nativities.

DISEASES.

John Gadbury, in the nativity he made of him, makes ♄ on the cuſp of the 7th houſe towards the 6th houſe, and ♂ on the cuſp of the aſcendent, the only two points in the whole ſcheme to give broken bones, diſlocated joints, and chronic diſeaſes, and yet he was never ſubject to either. Ptolemy, Chap. xvii. Lib. 3, begins thus; *Univerſales vero regula hæc eſt. Duo Cardines Horozontis inſpiciantur, viſqui eſt in ortu, & alter qui eſt in occaſa, & locus antecedens, qui prorſus non eſt copulatus aſcendenti. Et obſerveter quomodo malefici planetæ ea loca adſpicient. Si enim gradibus qui aſcendent in dictis locis, juncti ſunt corpore, aut adſpiciunt eos quadrato adſpectu, vel ex oppoſito; ſeu alter planeta maleficus, ſeu uterque: læſiones, & morbi natis accident.* According to John Gadbury's figure this rule takes place exactly, but inſtead of being ſubject to hurts and diſeaſes, he was a brave, bold, healthy, fortunate man; and

and I ſay no man can ſhew a true figure of a birth with the two infortunes in ☍ from the 10th and 4th, or 1ſt and 7th houſes, and that native prove a fortunate man or woman throughout their life. But to the point: both the angles of the Eaſt and Weſt are free from the malefic beams of ♄ and ♂; and the 6th houſe is poſſeſſed of the benign planet ♃, and there is no ill ray caſt to the cuſp of the 1ſt and 7th houſe, but the ſquare of ♀ from the cuſp of the 4th houſe; and beſides, the ☽, who is lady of the 7th houſe, is in ✶ to ♃ in the 6th, and the ☉ in ♉ to him alſo, which poſitions are no ways likely to give any chronic diſeaſe, or hurts, or detriment, to his body; neither indeed had he any that was remarkable and viſible, and for thoſe that are not ſo, I think they are inconſiderable; eſpecially if we conſider that all men are ſubject to ſome little defects in nature, which may be impediments, but not diſeaſes, in Ptolemy's ſenſe and meaning; for thus he diſtinguiſhes between hurts and diſeaſes; *Differunt hæc enim inter ſe, leſio ſemel corrumpit membrum aliquod, nec adfert poſtea cruciatus intenſionem; morbus vero, aut aſſidue aut per intervalla correptos excruciat.*

But to conſider what he might be ſubject to, let us conſider ♂ and ♄ in ☍, and both in □ to ♃; theſe might give him ſomething of the gravel in the reins, with a heat in or about thoſe parts; he might alſo be ſubject to the head-ach, or ſome little diſorder there coming from the ſtomach and ſpleen, for we find both the malefics in ſquare to ♃ in ♋. Beſides, he might alſo be liable to ſome obſtructions in his lungs, either by colds, &c. but none of theſe continual but accidental, and only happening upon bad directions, tranſits, returns, &c.

MARRIAGE.

The ☉ and ☽ both in ⚹ to ♃, and in △ to each other from ♉ and ♍, and the ☽ and ♃ applying to a mundane parallel; the ☉ is in ⚹ to the aſcendant, and ♀ in ſquare to it; and ♄ no ways afflicting the ſignificator of marriage, are undoubted ſigns the native ſhould marry. The ☽ in ♍, a barren ſign, a ſign of one ſhape, in aſpect to no Oriental planet, and but to one Occidental; beſides, the ☉ and ☿, which in this caſe are as one, ſhould allow him but one wife, nor is there any rule here that allows two: the time of marriage rather early, therefore I judge he might marry between twenty-one and twenty-two years of age. As to his wife, the ☉ and ♃ are ſignificators of this gentleman's wife, with a little mixture of ☿, but that concerns her intellects more than her body. Theſe poſitions deſcribe her a perſon to be well deſcended, middle ſtature, fleſhy body, and when in years, fat; her hair brown, or rather brightiſh; a woman of a high ſpirit, generous temper, healthy

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conſtitution; ambitious, long lived, and one of much ingenuity and ſenſe.

CHILDREN.

We muſt have recourſe to the 10th and 11th houſes, and the planets placed therein, or in their oppoſites, but we find none in either but ♀, and therefore let us conſider her with the lord of the 10th and 11th houſes and the ☽, and we find ♃ lord of thoſe houſes in ♋, a prolific ſign, and his own dignities in ✱ to the ☉ in the houſe of ♀, and in ✱ to the ☽ in the 7th houſe, and alſo in parallel to her applying theſe poſitions, ſhew the native would have many children; and as ♀ was on the cuſp of the 4th houſe, and the ☽ alſo angular, I ſhould conclude that the major part of them that would live were females; and becauſe ♀ is free from all manner of affliction, and ♃ cadent in the 6th houſe; ſo I judge ſome of the males died before they came to ripeneſs of years. That his children ſhould advance to a conſiderable honour and high ſtation is viſible, becauſe ♃, their ſignificator, is in ♋, his exaltation in ✱ to the ☉ and ☽, the fountain of promotion and honour. But beſides, we find ♃ in □ both to ♂ and ♄, which did alſo ſhew rubs and misfortunes in their lives; and obſerve, that a poor man, as well as a rich one, may have famous and eminent children; and on, the contrary, the rich as well as poor may have poor, dejected, infamous children; and this from principles of nature and rules in elementary philoſophy, without any injury to true divinity, or the Great Being.

JOURNIES.

The ſignificator of long journies in this figure is the ☽; ſee quadriparte, Lib. IV. Chap. viii; and as ſhe is in △ to the ☉, in △ to ☿, her diſpoſitor, and in ✱ to ♃, ſo his journies ſhould be about great and eminent actions and buſineſs; and the iſſue of them ſhould be great, famous, and fortunate; for the ☽ is no ways afflicted.

HONOUR and GRANDEUR.

In this figure we find ſix of the ſeven planets eſſentially dignified according to the dignities allowed by Ptolemy, for ♄ and ♃ are in their exaltations; ♂ in his own houſe, ♀ in her own houſe; ☿ in ♉ in reception with the ☽ in ♍; and what is yet more, the ☽, who is light of the time, is Oriental from the ☉, and angular in ✱ to ♃, and in △ to the ☉ and ☿, her diſpoſitor; and what is moſt

moſt conſiderable, ♄, ♃, and ♂, all caſting benific beams to the 10th houſe, and they alſo in cardinal ſigns, and are in the zodiac, equal to thoſe points we call angles in the figure. Theſe are the reaſons I give for his advancement; and as the three ſuperiors are in cardinal ſigns in ſquare and ☍ one to another, ſo he attained his grandeur by a kind of violence, force, and labour, joined with power, and ſo he maintained it all his time.

The birth is nocturnal, and the ☽ is light of the time in an angle, and her ſatellites, according to Ptolemy, are the ☉, ☿, ♃, and ♀, ſhe being in △ and ✱ to them all! Nay, and we may reckon ♄ and ♂ too, for ſhe is applying to a zodaical parallel with them alſo; and the three ſuperiors are, according to his rule, two of them in △, and one in ✱ to *medium cœli*; and all of them applying likewiſe, and ♃ the lord of the 10th houſe, the angle of honour; to which I will add this obſervation, that neither the ☉ nor ☽ are in any ill aſpect to any planet, nor any planet placed to his diſadvantage in the figure. The ☉, who is always the ſignificator of honour, glory, and reputation, is likewiſe free from all ill circumſtances, and in △ to the ☽, in ✱ of ♃, and in ☌ of ☿ and ♂, juſt riſing before him; which, according to Ptolomy, Lib. IV. Chap. iv. ſhews arms would be the practice of his life, the delight of his ſoul, and by thoſe things he would raiſe his honour and fortune. The great conjunction of ♄ and ♃ in the year 1623, in the ſeventh degree of ♌, near the cuſp of his ſeventh houſe in △ to ♂ in his ſecond, and in ✶ to ♄ in his eighth houſe, was none of the ſmalleſt cauſe of his greatneſs and promotion; neither was that conjunction in the year 1643, which was on the cuſp of his ſecond houſe, in exact △ to his tenth houſe, and in ✶ to ♀.

Perhaps it may ſeem ſtrange in ſome why he was ſo old before he began to appear on the mundane ſtage, but yet not at all ſtrange, becauſe all the planets are in the occidental parts of heaven, ♃ and ♀ excepted, and none angular but ♀ and the ☽, all the reſt being in either cadent or ſuccedent houſes, which always give what they promiſe in the latter part of life; and this is the more confirmed, if we obſerve that all but the ☽ and ♄ are under the earth. I confeſs I have no authority from Ptolemy for this judgment of time and age, when the native ſhall receive thoſe things of honour promiſed him, he only ſpeaking to the thing in general; but my experience in many nativities, and the method by which we judge early and late marriages, is ſufficient for me that the method is not improper.

FRIENDS and ENEMIES.

Ptolemy makes a diſtinction between friends and friends, and enemies and enemies, for he calls nothing

thing friendſhip but what is durable and intirely real, all the reſt he calls familiarity, and the effects of converſation and ſociety. By enemies and enmity he underſtands a perfect, radical, and perpetual hate, all the other things of difference, debate, and controverſy, he looks upon it to be nothing more or leſs than little accidents or caſualties in converſation; and he judges of theſe from the ☉, ☽, ⊕, and horoſcope.

In the radical figure we find the ☉, ☽, and aſcendant, well befriended by the other ſtars; but the ⊕ is in parallel both to ♄ and ♂, both in *zodiaco et mundo*; and ♂, who comes very near Ptolemy's rule, who is in his own houſe, and not much above 17° diſtant from the ☉, aſcending by oblique aſcenſion, is in □ to ♃, and in ☍ to ♄; the ☽ is in reception with ☿, and all the reſt of the planets in their own dignities except the ☉. Hence it is reaſonable to judge this native ſhould have many friends and many enemies, and as the part of fortune is afflicted moſt, ſo I judge the hatred of his enemies was real, and the cauſe of it was, becauſe of the profit and advantage he received with his power and honour. Beſides, ♀ is in □ to the aſcendant, which might riſe ſome enemies envying him for his pleaſure and eaſe of his life. While in the army he had many enemies, but the parliament was his friend. When Protector he had enemies plotting againſt him, but all nations were his friends, either for love or fear; and

and what is more, it was his own prudence, courage, counſel, and conduct, that carried him through and above all theſe things; and this is aptly ſignified by Ptolemy: *cum lumina congruunt, erit amicitia adjuncta conſilio optima et tutiſſima*; which in this nativity takes place, for the lights are in △ to each other, the one in ☌ of ☿, and the other in △, and reception with him, and all theſe aſſiſted by the beams of ♃, who is in ♋, and in △ to *medium cœli*, by which means he is doubly concerned in giving and ſupporting his honour and friendſhip. In a word, this man had many enemies, and thoſe great and conſiderable in their quality, and this judgeable by the poſition; but he had more friends to ſupport his intereſt, which is the uſual and natural effect of ſo fortunate a poſition.

SERVANTS.

I ſhall give this judgment as the reſt, ſuppoſing the native to have been of the common quality. Ptolemy doth allow the twelfth houſe and planets placed therein, to ſignify ſervants; but if none in that houſe take thoſe placed in the ſixth, but moſt chiefly to obſerve how the lord of the twelfth doth agree or diſagree with the chief and moſt principal parts of the figure, and from thence make judgment. Here we find ♄ lord of the twelfth, in ♎ his exaltation, but in no aſpect, good or bad, to the aſcendant *medium cœli.* ☉, ☽, or ⊕ only parallel with the laſt,, which indeed ſhould ſhew the native's ſervants to be none of the beſt; but if we conſider ♃ in the 6th houſe, and therein a zodiacal ſquare, and mundane ⚹ to ♄, I ſhould judge his ſervants were moderate, truſty, and juſt; and this the rather, becauſe ♀ beholds the cuſp of the twelfth houſe with an exact △; but this laſt I ſpeak of myſelf, there being nothing of that in the rule. Upon the whole, I judge, had this native been of the common quality, his ſervants would have been juſt in their duty, but ſtubborn and headſtrong: and that they and the native would agree moderately well.

DEATH.

Some lay the cauſe of death on bad revolutions, ſome on eclipſes of the luminaries, ſome on great conjunctions, ſome on comets; but theſe are falſe and groundleſs, and I poſitively ſay, cannot kill, nor ever did by themſelves at any time; but all allow that violent directions to the hylegiacals, give ſickneſs, death, and other misfortunes; and it was directions that cauſed the Protector's death on September 3, 1658. Partridge, ſeems to give a diſtant hint, he was poiſoned by a phyſician: The directions then operating, were about June: The ☽ giver of life to the parallel of ♂ *in mundo*, converſe direction. And about the latter end of Auguſt, the ☽ to the parallel of ♂ *mundo*, direct direction. And this followed by the ☽ to her own □ *zodiaco ſine Lat.* The ☽ to the parallel of ♄ *in mundo*, direct and converſe direction. The ☽ to the □ of ♄, *in mundo*, converſe direction. The ☽ to □ of ♂ *in mundo*, converſe direction. Thus he had ſeven directions violent and malific, and not one good direction between, to help the hyleg according to Ptolemy, "*Cum autem quærimus in his locis potentiſſimum, primus erit medium cæli, deinde horoſcopus, poſtea undecima domus, ſuccedens medio cæli, deinde occaſus, poſtea domus nonus antecedens medium cæli.*"

The other concomitants in the evil directions were,

Firſt, a remarkable revolution for that year, and the radical figure may very well ſerve for every revolution throughout life, placing the planets in the degrees of thoſe ſigns that they ſhall be found in at the time of the ⊙'s return to his radical place, or near it, becauſe nothing can be found in revolutions, but what may as plainly be diſcovered by tranſits in the revolution and the returns.

On the ☉'s return to his radical place the 24th of April, 6 hours A. M. 1658, being the year he died, the planets were thus poſited :

	☉	☽	♄	♃	♂	♀	☿	☊
Deg. of Long.	♉	♊	♎	♋	♋	♉	♉	♐
	13.55	5.20	12.49	7.19	4. 8	15.38	11.56	13.4
Lat.								

The ☽ by direct direction, is arrived at 14° of ♐, the exact □ to her own radical place, and at the time of the ☉'s return, going to the oppoſite point of that place, and to the □ of her own place in the radix ; ♄ and ♃ are both returned to their own radical places ; and ſo is ♂ and the ☽ to their own ſquare ; ☿ and ♀ are in ♉, where they were in the radix, and not far from their own radical places, ſo that all the planets are returned to their own radical places, except ♂ and the ☽, and they in the □ to them. Now the uſe I make of the revolution, is this ; the ☽, ♂, and ♄, are all of them promittors by direction : ♂ is in a □ to ♄, lord of the radical horoſcope, who is here returned to his radical place ; and the ☽ though hyleg, yet is here a promittor alſo, and is going to the direct ☍ of the place of direction, and to the □ of her own place; and beſides this, ♂ is going to the mundane parallel of the ☉; and to ſum up all, we find both the ☽ and ♂ with violent conſtellations, the ☽ with Aldebaran, and ♂ with Caſtor and Pollux. So that we may from the ☉ return, and the then configuration compared with the directions, conclude, according to ſecond cauſes, it could be no leſs than mortal. When I have done this, I always conſider ſecondary directions and progreſſions, and ſee if they help on the work; and under this revolution, we find the aſcenſion by ſecondary motion, was directed to the ☍ of ♃, the ☉ under the □ of ♄, and had been ſo about ſix months; the ☽ to the ☍ of ♃, and that juſt touched about the time of his ſickneſs; all which are ill, and ſhew a bad year.

The progreſſion began Jan. 2, about ſix o clock *mundane* 160¾, and was but an indifferent one; you may call it bad, for the ☽ was in the ☉'s radical place, with ♄ and ♃ on the place of direction, and in the □ to the ☽'s radical place, and ♂ in oppoſition to his own place; but ♀ is on the radical aſcenſion in ☌ with the ☉, and that is all that may be called good.

But above all, the ingreſſes and tranſits of the planets at the time of the beginning of his ſickneſs and death, are very remarkable; for about the time he was taken ſick, Auguſt 26, there was a tranſit and ingreſs of the ☉ on the ☽'s radical place, in □ to the place of direction; and a little before, there was a ☌ of the ☽, ♂, and ☿, on or near the ſame degree, and ſo configurated as before; and the very day of his death, the ☽ did tranſit the radical place of ♂'s body, and alſo in ☍ to ♄; and the ☉ in exact zodiacal parallel with ♄, and going to the zodaical parallel of ♂, and to his conjunction alſo. Thus I underſtand the method and manner of judging death by primary and converſe ingreſſes, which, if rightly underſtood, will give the ſtudent ſatisfaction.

QUALITY of DEATH.

This is known from the direction or directions, that the giver of life is directed to, and according to the nature of that ſtar or ſtars, ſo ſhall the diſeaſe be, and not from the lord of the eighth houſe. Thus, if the giver of life is directed to the conjunction or quartile of ♄ or ♂ in ♈, ♏, or ♎, eſpecially near any violent fixed ſtars, the native will either be poiſoned, or intoxicated with poiſonous phyſic, and this in defiance of the lord of the eighth houſe, even if it ſhould be ♃, who, I am ſure gives no ſuch thing.

ADDITIONAL REMARKS On CROMWELL.

HE was admitted Fellow Commoner at Sidney College, Cambridge, the 23d of April, 1616.

Returned home to his Mother the beginning of the year 1618.

Sent from Huntingdon to Lincoln's Inn, 1619.

The Birth of eight of his Children.

* Robert Cromwell, born the 8th of October, 1621.
* Oliver Cromwell, born the 6th of February, 1622.
Bridget Cromwell, born the 5th of Auguſt, 1624.
Richard Cromwell, born the 4th of October, 1626.
Henry Cromwell, born the 20th of January, 1627.
Elizabeth Cromwell, born the 2d of July, 1629.
James Cromwell, born the 8th of January, 1631.
Mary Cromwell, born the 9th of February, 1636.

The

The Protector had one Brother and two Siſters, born as follow:

Elizabeth Cromwell, daughter of Robert and Elizabeth Cromwell, was born the 14th of October, 1593.

Henry Cromwell, born the 13th of Auguſt, 1595.

Catherine Cromwell, born the 7th of February, 1569.

☞ We have in the foregoing Aſtral Speculum, taken the faces of the planets according to the table, page 14 of the Introduction; but as the Ptolomean method is materially different from that, we will ſubjoin it here, for the ſake of variety.

ALMUGAN, or FACE of the PLANETS, according to PTOLEMY.

♄ five ſigns from the Sun, according to the ſucceſſive order of the ſign, has one eſſential dignity.

♃ the ſame, if four ſigns diſtance.

♂, if three ſigns diſtance.

♀, if two ſigns diſtance.

☿, if one ſign diſtance.

♄ has one dignity if he is five ſigns diſtance from the Moon, contrary to the ſucceſſive order of the ſigns.

♃ has one dignity, if four ſigns diſtance.

♂, The ſame, if three ſigns diſtance.

♀, if two ſigns diſtance.

☿, if one ſign diſtance.

A TABLE

A TABLE

Shewing the Quantity of Twilight, anſwerable to every 6 Degrees of the Sun's Place, and extending from 49 Degrees to 57 Degrees of North Latitude.

Pole		49		50.		51		52		53		54		55		56		57	
☉ Place		H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.
♋	30																		
6	2					All day											No	night.	
12	18									But									
18	12	3	36																
24	6	3	13	3	25			Conti-		nual		Twi-		light.					
♌	♊	2	50	3	4	3	23												
6	24	2	39	2	49	2	59	3	15	3	55								
12	18	2	30	1	36	2	45	2	56	3	9	3	30						
18	12	2	21	2	25	2	34	2	41	2	50	3	3	3	17	3	42		
24	6	3	14	2	19	2	25	2	31	2	38	2	45	2	56	3	8	3	23
♍	♉	2	8	2	22	2	17	2	22	2	28	2	34	2	42	2	49	3	0
6	24	2	4	2	7	2	11	2	16	2	20	2	25	2	31	2	37	2	45
12	18	2	0	2	3	2	6	2	10	2	14	2	19	2	24	2	28	2	35
18	12	1	57	2	0	2	3	2	6	2	10	2	14	2	18	2	22	2	27
24	6	1	54	1	57	2	0	2	3	2	6	2	10	2	14	2	18	2	22
♎	♈	1	52	1	55	1	58	2	1	2	4	2	7	2	10	2	14	2	18
6	24	1	51	1	53	1	56	1	59	2	2	2	5	2	8	2	12	2	16
12	18	1	51	1	53	1	56	1	58	2	1	2	4	2	7	2	10	2	14
18	12	1	50	1	53	1	55	1	58	2	1	2	4	1	7	2	10	2	14
24	6	1	51	1	53	1	55	1	58	2	1	2	4	2	7	2	10	2	13
♏	♓	1	51	1	54	1	56	1	59	2	2	2	4	2	8	2	11	2	14
6	24	1	52	1	55	1	57	2	0	2	3	2	6	2	9	2	13	2	16
12	18	1	54	1	56	1	59	2	1	2	4	2	8	2	11	2	15	2	18
18	12	1	55	1	57	2	0	2	3	2	6	2	10	2	13	2	17	2	21
24	6	1	56	1	59	2	2	2	5	2	8	2	12	2	15	2	19	2	24
♐	♒	1	58	2	1	2	4	2	7	2	10	2	14	2	18	2	22	2	27
6	24	2	0	2	3	2	6	2	9	2	12	2	16	1	20	2	25	2	30
12	18	2	1	2	4	2	7	2	11	2	14	2	18	2	22	2	27	2	33
18	12	2	2	2	5	2	8	2	12	2	16	2	20	2	24	2	29	2	35
24	6	2	3	2	6	2	9	2	13	2	17	2	21	2	15	2	30	2	36
30	♑	2	3	2	6	2	10	2	14	2	18	2	22	2	26	2	31	2	37

◆

A TABLE

OF

LOGISTICAL LOGARITHMS,

For finding the Part proportional both in

TIME and MOTION.

LOGISTICAL LOGARITHMS.

Minute		0	1	2	3	4	5	6
N			60	120	180	240	300	360
	Time m. ſ.		h. m. 0 24	h. m. 0 48	h. m. 1 12	h. m. 1 36	h. m. 2 0	h. m. 2 24
0	1 0		17782	14771	13010	11761	10792	10000
1	24	35563	17710	14735	12986	11743	10777	9988
2	48	32553	17639	14699	12962	11725	10763	9976
3	1 12	30792	17570	14664	12939	11707	10749	9964
4	36	29542	17501	14629	12915	11689	10734	9952
5	2 0	28573	17434	14594	12891	11671	10720	9940
6	24	27782	17368	14559	12868	11654	10706	9928
7	48	27112	17302	14525	12845	11636	10692	9918
8	3 12	26532	17238	14491	12821	11619	10678	9905
9	36	26021	17175	14457	12798	11601	10663	9893
10	4 0	25563	17110	14424	12775	11684	10649	9881
11	24	25149	17050	14390	12753	11666	16635	9869
12	48	24771	16990	14357	12730	11549	10621	9858
13	5 12	24424	16930	14325	12707	11532	10608	9846
14	36	24102	16871	14292	12685	11515	10594	9834
15	6 0	23802	16812	14260	12663	11498	10580	9823
16	24	23527	16755	14228	12640	11481	10566	9811
17	48	23259	16698	14196	12618	11464	10552	9800
18	7 12	23010	16642	14165	12596	11447	10539	9788
19	36	22775	16587	14133	12574	11430	10525	9777
20	8 0	22553	16532	14102	12553	11413	10512	9765
21	24	22341	16478	14071	12531	11397	10498	9754
22	48	22139	16425	14040	12510	11380	10484	9742
23	9 12	21946	16372	14010	12488	11363	10471	9731
24	36	21761	16320	13979	12467	11347	10458	9720
25	10 0	21584	16269	13949	12445	11331	10444	9708
26	24	21413	16218	13919	12424	11314	10431	9697
27	48	21249	16168	13890	12403	11298	10418	9686
28	11 12	21091	16118	13860	12382	11282	10404	9675
29	36	20939	16069	13831	12362	11266	10391	9664
30	12 0	20702	16021	13802	12341	11249	10378	9652

LOGISTICAL LOGARITHMS.

Minute			0	1	2	3	4	5	6
″				60	120	180	240	300	360
	Time m.	ſ.		h. m 0 24	h. m. 0 48	h. m. 1 12	h. m. 1 36	h. m. 2 0	h. m. 2 24
30	12	0	20792	16021	13802	12342	11249	10378	9652
31		24	20649	15973	13773	12320	11233	10365	9641
32		48	20512	15925	13745	12300	11217	10352	9630
33	13	12	20378	15878	13716	12279	11201	10339	9619
34		36	20248	15832	13688	12259	11186	10326	9608
35	14	0	20122	15786	13660	12239	11170	10313	9597
36		24	20000	15740	13632	12218	11154	10300	9586
37		48	19881	15695	13604	12198	11138	10287	9575
38	15	12	19765	15651	13576	12178	11123	10274	9564
39		36	19652	15607	13549	12159	11107	10261	9553
40	16	0	19542	15563	13522	12139	11091	10248	9542
41		24	19435	15520	13495	12119	11076	10235	9532
42		48	19331	15477	13468	12099	11061	10223	9521
43	17	10	19228	15435	13441	12080	11045	10210	9510
44		36	19128	15393	13415	12061	11030	10197	9499
45	18	0	19131	15351	13381	12010	11015	10185	9488
46		24	18935	15310	13362	12022	10919	10172	9478
47		48	18842	15269	13336	12003	10984	10160	9467
48	19	12	18751	15229	13310	11984	10969	10147	9456
49		36	18661	15189	13284	11965	10954	10135	9446
50	20	0	18573	15149	13259	11946	10939	10122	9435
51		24	18487	15110	13233	11927	10924	10110	9425
52		48	18403	15071	13208	11908	10909	10098	9414
53	21	12	18320	15032	13183	11889	10894	10085	9404
54		36	18239	14994	13158	11871	10880	10073	9393
55	22	0	18159	14956	13133	11852	10865	10061	9383
56		24	18081	14918	13108	11834	10850	10049	9372
57		48	18004	14881	13083	11816	10835	10036	9362
58	23	12	17929	14844	13059	11797	10821	10024	9351
59		36	17855	14808	13034	11779	10806	10012	9341
60	24	0	17782	14771	13010	11761	10792	10000	9331

LOGISTICAL LOGARITHMS.

Minute			7	8	9	10	11	12	13
			420	480	540	600	660	720	780
	Time m.	ſ.	h. m. 2 48	h. m. 3 12	h. m. 3 36	h. m. 4 0	h. m. 4 24	h. m. 4 48	h. m. 5 12
0		0	9331	8751	8239	7782	7368	6990	6642
1		24	9320	8742	8231	7774	7361	6984	6637
2		48	9310	8733	8223	7767	7054	6978	6631
3	1	12	9300	8724	8215	7760	7348	6972	6625
4		36	9289	8715	8207	7753	7341	6966	6620
5	2	0	9279	8706	8199	7745	7335	6960	6914
6		24	9269	8697	8191	7738	7328	6954	6609
7		48	9219	8688	8183	7731	7322	6948	6603
8	3	12	9249	8679	8175	7724	7315	6942	6598
9		36	9238	8670	8167	7717	7309	6936	6592
10	4	0	9202	8661	8159	7710	7302	6930	6587
11		24	9218	8652	8152	7793	7296	6924	6581
12		48	9208	8643	8144	7698	7289	6918	6576
13	5	12	9198	8635	8136	7688	7283	6912	6570
14		36	9188	8626	8128	7688	7276	6906	6565
15	6	0	9178	8617	8120	7674	7270	6900	6559
16		24	9168	8608	8112	7667	7264	6894	6554
17		48	9158	8599	8104	7660	7257	6888	6548
18	7	12	9148	8591	8097	7653	7251	6882	6543
19		36	9138	8582	8089	7646	7244	6877	6538
20	8	0	9128	8573	8081	7639	7238	6871	6532
21		24	9119	8565	8073	7632	7232	6865	6527
22		48	9109	8556	8066	7625	7225	6859	6521
23	9	12	9099	8547	8058	7618	7219	6853	6516
42		36	9089	8539	8050	7611	7212	6847	6510
25	10	0	9079	8530	8043	7604	7206	6841	6505
26		24	9070	8522	8035	7597	7200	6836	6500
27		48	9060	8513	8027	7590	7193	6830	6494
28	11	12	9050	8504	8020	7583	7187	6824	6489
29		36	9041	8496	8012	7577	7181	6818	6484
30	12	0	9031	8487	8004	7570	7175	6812	6478

LOGISTICAL LOGARITHMS.

Minute			7	8	9	10	11	12	13
			420	480	540	600	660	720	780
	Time		h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
	m.	ſ.	2 48	3 12	3 36	4 0	4 24	4 48	5 12
30	12	0	9031	8487	8004	7570	7175	6812	6471
31		24	9021	8489	7997	7563	7168	6807	6473
32		48	9012	8476	7989	7556	7162	6801	6467
33	13	12	9002	8462	7981	7549	7156	6795	6462
34		36	8992	8453	7974	7542	7149	6789	6457
35	14	0	8983	8445	7966	7335	7143	6784	6451
36		24	8973	8437	7959	7528	7137	6778	6446
37		48	8964	8428	7951	7522	7131	6772	6441
38	15	12	8954	8420	7944	7515	7124	6766	6435
39		36	8945	8411	7936	7508	7118	6761	6430
40	16	0	8935	8403	7929	7501	7112	6755	6425
41		24	8926	8395	7921	7494	7106	6749	6420
42		48	8917	8386	7914	7488	7100	6743	6414
43	17	12	8907	8378	7906	7481	7093	6738	6402
44		36	8898	8370	7899	7474	7087	6732	6404
45	18	0	8888	8361	7891	7467	7081	6726	6398
46		24	8879	8353	7884	7461	7075	6721	6393
47		48	8870	8345	7877	7454	7069	6715	6388
48	19	12	8861	8337	7869	7447	7063	6709	6383
49		36	8851	8328	7862	7441	7057	6704	6377
50	20	0	8842	8320	7855	7434	7050	6698	6372
51		24	8833	8312	7847	7427	7044	6692	6367
52		48	8824	8304	7840	7421	7038	6687	6362
53	21	12	8814	8296	7832	7414	7032	9681	6357
54		36	8805	8288	7825	7407	7026	6676	6351
55	22	0	8796	8279	7818	7401	7020	6670	6346
56		24	8787	8271	7811	7394	7014	6664	6341
57		48	8778	8263	7803	7387	7008	6659	6336
58	23	12	8769	8255	7796	7381	7002	6653	6331
59		36	8760	8247	7789	7374	6996	6648	6325
60	24	0	8751	8239	7782	7368	6990	6642	6320

LOGISTICAL LOGARITHMS.

Minute		14	15	16	17	18	19	20
		840	900	960	1020	1080	1140	1200
	Time m. ſ.	h. m. 5 36	h. m. 9 0	h. m. 6 24	h. m. 6 48	h. m. 7 12	h. m. 7 36	h. m. 8 0
0	0	6320	6021	5740	5477	5229	4994	4771
1	24	6315	6016	5736	5473	5225	4990	4768
2	48	6310	6011	5731	5469	5221	4986	4764
3	1 12	6305	6006	5727	5464	5217	4983	4760
4	36	6300	6001	5722	5460	5213	4979	4757
5	2 0	6294	5997	5718	5456	5206	4975	4753
6	24	6289	5992	5713	5452	5205	4971	4750
7	48	6284	5987	5709	5447	5201	4967	4746
8	3 12	6279	5982	5704	5443	519	4964	4742
9	36	6274	5977	5700	5439	5193	4960	4739
10	4 0	6269	5973	5695	5435	5189	4956	4735
11	24	6264	5968	5691	5430	5185	4952	4732
12	48	6259	5963	5686	5426	5181	4949	4728
13	5 12	6254	5958	5682	5422	5177	4945	4724
14	36	6248	5954	5677	5418	5173	4941	4721
15	6 0	6243	5949	5673	5414	5169	4937	4717
16	24	6238	5944	5669	5409	5165	4933	4714
17	48	6233	5939	5664	5405	5161	4930	4710
18	7 12	6228	5935	5660	5401	5157	4926	4707
19	36	6223	5930	5655	5397	5153	4922	4703
20	8 0	6218	5925	5651	5393	5149	4918	4699
21	24	6213	5220	5646	5389	5145	4915	4696
22	48	6208	5916	5642	5384	5141	4911	4692
23	9 12	6203	5911	5637	5380	5137	4907	4689
24	36	6198	5906	5633	5376	5133	4903	4685
25	10 0	6193	5902	5629	5372	5129	4900	4682
26	24	6188	5897	5624	5368	5125	4896	4678
27	48	6183	5892	5620	5364	5122	4892	4675
28	11 12	6178	5888	5615	5359	5118	4889	4671
29	36	6173	5883	5611	5355	5114	4885	4668
30	12 0	6168	5877	5607	5351	5110	4881	4664

LOGISTICAL LOGARITHMS.

Minute		14	15	16	17	18	19	20
		840	900	960	1020	1080	1180	1201
	Time m. ſ.	h. m. 5 36	h. m. 6 0	h. m. 6 24	h. m. 9 48	h. m. 7 12	h. m. 7 36	h. m. 8 0
30	13 0	6168	5870	5607	5351	5110	4881	4664
31	24	6163	5874	5602	5347	5106	4877	4664
32	48	6158	5869	5598	5343	5102	4874	4657
33	13 12	6153	5864	5594	5339	5098	4870	4653
34	36	6148	5860	5589	5335	5094	4866	4650
35	14 0	6143	5855	5585	5331	5094	4863	4646
36	24	6138	5850	5580	5326	5086	4859	4643
37	48	6133	5846	5576	5322	5082	4855	4639
38	15 13	6128	5841	5572	5318	5079	4852	4636
39	36	6123	5836	5567	5314	5075	4848	4632
40	16 0	6118	5832	5563	5310	5071	4844	4629
41	24	6113	5827	5550	5306	5067	4841	4625
42	48	6108	5823	5554	5302	5063	4837	4622
43	17 12	6103	5818	5550	5298	5059	4833	4618
44	36	6099	5813	5546	5294	5059	4830	4615
45	18 0	6094	5809	5541	5290	5051	4826	4611
46	24	6089	5804	5537	5285	5048	4822	4608
47	48	6084	5800	5533	5281	5044	4819	4604
48	19 12	6079	5795	5528	5277	5040	4815	4601
49	36	6074	5790	5524	5273	5036	4811	4597
50	20 0	6069	5786	5520	5269	5032	4808	4594
51	24	6064	5781	5516	5265	5028	4804	4590
52	48	6059	5777	5511	5261	5025	4800	4587
53	21 12	6055	5772	5507	5257	5021	4807	4584
54	36	6050	5768	5503	5253	5017	4793	4580
55	22 0	6045	5763	5498	5249	5013	4789	4577
56	24	6040	5758	5494	5245	5009	4786	4573
57	48	6035	5754	5490	5241	5005	4782	4470
58	23 12	6030	5749	5486	5237	5002	4778	4566
59	36	6025	5745	5481	5233	4998	4775	4563
60	24 0	6021	5740	5477	5220	4994	4771	4559

LOGISTICAL LOGARITHMS.

Minute		21	22	23	24	25	26	27
		1260	1320	1380	1440	1500	1560	8920
	Time m. ſ.	h. m. 8 24	h. m. 8 48	h. m. 9 12	h. m. 9 36	h. m. 10 0	h. m. 10 24	h. m. 10 48
0	0	4559	4357	4164	3979	3802	3632	3468
1	24	4556	4354	4161	3976	3799	3629	3465
2	48	4552	4351	4158	3973	3796	3626	3463
3	1 12	4549	4347	4155	3970	3793	3623	3460
4	36	4546	4344	4152	3967	3791	3621	3457
5	2 0	4542	4341	4143	3964	3788	3618	3454
6	24	4539	4338	4145	3961	3785	3615	3452
7	48	4535	4334	4142	3958	3782	3612	3419
8	3 12	4532	4331	4139	3955	3779	3610	3446
9	36	4528	4328	4136	3952	3776	3601	3444
10	4 0	4525	4325	4135	3949	3773	3604	3441
11	24	4522	4321	4130	3946	3770	3601	3438
12	48	4518	4318	4127	3943	3768	3598	3433
13	5 12	4515	4315	4124	3940	3765	3596	3433
14	36	4511	4311	4120	3937	3762	3593	3431
15	6 0	4508	4308	4117	3934	3759	3590	3128
16	24	4505	4305	4114	3931	3756	3587	3425
17	48	4501	4302	4111	3928	3753	3585	3423
18	7 12	4498	4298	4108	3925	3750	3582	3420
19	36	4494	4295	4105	3922	3747	3579	3417
20	8 0	4491	4292	4102	3919	3745	3576	3415
21	24	4488	4289	4099	3917	3749	3574	3412
22	48	4484	4285	4096	3914	3739	3571	3409
23	9 12	4481	4282	4092	3911	3736	3568	3407
24	36	4477	4279	4989	3908	3733	3565	3404
25	10 0	4474	4276	4086	3905	3730	3563	3401
26	24	4471	4273	4083	3902	3727	3560	3399
27	48	4467	4269	4080	3899	3725	3557	3396
28	11 12	4464	4266	4077	3896	3722	4555	3363
29	36	4460	4264	4072	3893	3710	3558	3391
30	12 0	4457	4260	4071	3899	3716	3549	3388

LOGISTICAL LOGARITHMS.

Minute		21	22	23	24	25	26	27
		1260	1320	1380	1440	1500	1560	1620
	Time m. ſ.	h. m. 8 24	h. m. 8 48	h. m. 9 12	h. m. 9 36	h. m. 10 0	h. m. 10 24	h. m. 10 48
30	12 0	4457	4260	4071	3890	3716	3549	3388
31	24	4454	4256	4068	3887	3713	3546	3386
32	48	4450	4253	4065	3884	3710	3544	3383
33	13 12	4447	4250	4062	3881	3708	3541	3380
34	36	4444	4247	4059	3878	3705	3538	3378
35	14 0	4440	4244	4055	3875	3702	3535	3375
36	24	4437	4240	4052	3872	3699	3533	3372
37	48	4434	4237	4049	3869	3696	3530	3370
38	15 12	4430	4234	4046	3866	3693	3527	3367
39	36	4427	4231	4043	3863	3691	3525	3365
40	16 0	4424	4228	4040	3860	3688	3522	3362
41	24	4420	4224	4037	3857	3685	3519	3359
42	48	4417	4221	4034	3855	3682	3516	3357
43	17 12	4414	4218	4031	3852	3679	3514	3354
44	36	4410	4215	4028	3849	3677	3511	3351
45	18 0	4407	4212	4025	3846	3674	3508	3349
46	24	4404	4209	4022	3843	3671	3506	3346
47	48	4400	4205	4019	3840	3668	3503	3344
48	19 12	4397	4202	4016	3837	3665	3500	3341
49	36	4394	4199	4013	3834	3663	3497	3338
50	20 0	4390	4196	4010	3831	3660	3495	3338
51	24	4387	4193	4007	3828	3657	3492	3333
52	48	4384	4189	4004	3825	3654	3489	3331
53	21 12	4380	4186	4001	3822	3651	3487	3328
54	36	4377	4183	3998	3820	3649	3484	3325
55	22 0	4374	4180	3995	3817	3646	3481	3323
56	24	4370	4177	3991	3814	3643	3479	3320
57	48	4367	4174	3988	3811	3640	3476	3318
58	23 12	4364	4171	3985	3808	3637	3473	3315
59	36	4361	4167	3982	3805	3635	3471	3313
60	24 0	4357	4146	3979	3802	3632	4468	3310

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LOGISTICAL LOGARITHMS.

Minute			28	29	30	31	32	33	34
			1680	1740	1800	1860	1920	1980	2040
	Time m.	ſ.	h. m. 11 12	h. m. 11 36	h. m. 12 0	h. m. 12 24	h. m. 12 48	h. m. 13 12	h. m. 13 36
0		0	3310	3158	3010	2868	2730	2596	2467
1		24	3307	3155	3008	2866	2728	2594	2465
2		48	3305	3153	3005	2863	2725	2592	2462
3	1	12	3302	3150	3000	2861	2723	2590	2460
4		36	3306	3148	3001	2859	2721	2588	2458
5	2	0	3297	3145	2998	2856	2719	2585	2456
6		24	3294	3143	2996	2854	2716	2583	2454
7		48	3292	3140	2993	2852	2714	2581	2452
8	3	12	3289	3138	2991	2849	2712	2579	2450
9		36	3287	3135	2989	2847	2710	2577	2448
10	4	0	3284	3133	2986	2845	2707	2574	2445
11		24	3282	3130	2984	2842	2705	2572	2443
12		48	3279	3128	2981	2840	2703	2570	2441
13	5	12	3276	3125	2979	2838	2701	2568	2439
14		36	3274	3123	2977	2835	2698	2560	2437
15	6	0	3271	3120	2974	2833	2696	2561	2435
16		24	3269	3118	2972	2831	2694	2551	2433
17		48	3266	3115	2969	2828	2692	2559	2421
18	7	12	3264	3113	2967	2826	2689	2557	2429
19		36	3261	3110	2964	2824	2687	2555	2426
20	8	0	3259	3108	2962	2921	2685	2553	2424
21		24	3256	3105	2960	2819	2683	2551	2422
22		48	3253	3103	2958	2817	2681	2548	2420
23	9	12	3251	3101	2955	2815	2678	2546	2418
24		36	3248	3098	2953	2812	2676	2544	2416
25	10	0	3246	3096	2950	2810	2674	2542	2414
26		24	3243	3093	2948	2808	2672	2540	2412
27		48	3241	3091	2946	2805	2669	2538	2410
28	11	12	3238	3888	2943	2803	2667	2535	2408
29		36	3236	3086	2941	2801	2665	2533	2405
30	12	0	3233	3083	2939	2798	2663	2531	2403

LOGISTICAL LOGARITHMS.

Minute		28	29	30	31	32	33	34
		2680	1740	1800	1860	1930	1900	2040
	Time m. ſ.	h. m. 11 12	h. m 11 36	h. m. 12 0	h. m. 12 24	h. m. 12 48	h. m. 13 12	h. m. 13 36
30	12 0	3233	3083	2939	2798	2663	2531	2403
31	24	3231	3081	2936	2796	2660	2529	2401
32	48	3228	3078	2934	2794	2658	2527	2399
33	13 12	3225	3076	2931	2702	2656	2525	2397
34	36	3223	3073	2929	2789	2654	2522	2395
35	14 0	3220	3071	2917	2787	2652	2520	2393
36	24	3218	3069	2924	2785	2649	2518	2391
37	48	3215	3066	2922	2782	2647	2516	2389
38	15 12	3213	3064	2920	2780	2645	2514	2387
39	36	3210	3061	2917	2778	2643	2512	2384
40	16 0	3208	3059	2915	2775	2640	2510	2382
41	24	3205	3056	2912	2773	2638	2507	2380
42	48	3203	3054	2910	2771	2636	2505	2378
43	17 10	3200	3052	2908	2769	2634	2503	2376
44	36	3198	3049	2905	2766	2632	2501	2374
45	18 0	3195	3047	2903	2764	2629	2499	2372
46	24	3193	3044	2901	2762	2627	2497	2370
47	48	3190	3042	2998	2760	2625	2494	2378
48	19 12	3188	3039	2896	2757	2623	2492	2366
49	36	3185	3037	2894	2755	2621	2490	2364
50	20 0	3183	3034	2891	2753	2618	2488	2362
51	24	3180	3032	2889	2750	2616	2486	2359
52	48	3178	3030	2887	2748	2614	2484	2357
53	21 12	3175	3027	2884	2746	2612	2482	2355
54	36	3173	3025	2882	2744	2610	2480	2353
55	22 0	3170	3022	2880	2741	2607	2477	2351
56	24	3168	3620	2877	2739	2605	2475	2349
57	48	3165	3018	2875	2737	2603	2473	2347
58	23 12	3163	3015	2873	2735	2601	2471	2345
59	36	3160	3013	2870	2732	2599	2469	2343
60	24 0	3158	3010	2868	2730	2596	2467	2341

LOGISTICAL LOGARITHMS.

Minute		35	36	37	38	39	40	41
		2100	2160	2220	2280	2340	2400	2460
	Time m. ſ.	h. m. 14 0	h. m. 14 24	h. m. 14 48	h. m. 15 12	h. m. 15 36	h. m. 16 0	h. m. 16 24
0	0	2341	2218	2099	1984	1871	1761	1654
1	24	2339	2216	2098	1982	1869	1759	1652
2	48	2337	2214	2096	1980	1867	1757	1650
3	1 12	2335	2212	2094	1978	1865	1755	1648
4	36	2333	2210	2092	1976	1863	1754	1647
5	2 0	2331	2208	2090	1974	1862	1752	1645
6	24	2328	2206	2088	1972	1860	1750	1643
7	48	2326	2204	2086	1970	1858	1748	1641
8	3 12	2324	2202	2084	1968	1856	1746	1640
9	36	2322	2200	2082	1967	1854	1745	1638
10	4 0	2320	2198	2080	1965	1852	1743	1636
11	24	2318	2196	2078	1963	1850	1741	1634
12	48	2316	2194	2076	1961	1849	1739	1633
13	5 12	2314	2192	2074	1959	1847	1737	1631
14	36	2312	2190	2072	1957	1845	1736	1629
15	6 0	2310	2188	2070	1955	1843	1734	1627
16	24	2308	2186	2068	1953	1841	1732	1626
17	48	2306	2184	2066	1951	1839	1730	1624
18	7 12	2304	2182	2064	1950	1838	1728	1622
19	36	2302	2180	2062	1948	1836	1727	1620
20	8 0	2300	2178	2061	1946	1834	1725	1619
21	24	2298	2176	2050	1944	1832	1723	1617
22	48	2296	2174	2057	1942	1830	1721	1615
23	9 12	2294	2172	2055	1940	1828	1719	1613
24	36	2291	2170	2053	1938	1827	1718	1612
25	10 0	2289	2169	2051	1936	1825	1716	1610
26	24	2287	2167	2049	1934	1823	1714	1608
27	48	2285	2165	2047	1933	1821	1712	1606
28	11 12	2283	2163	2045	1931	1819	1711	1605
29	36	2281	2161	2043	1929	1817	1709	1603
30	12 0	2279	2159	2041	1927	1816	1707	1601

LOGISTICAL LOGARITHMS.

Minute	Time		35	36	37	38	39	40	41
			2100	2160	2220	2280	2340	2400	2460
	m.	ſ.	h. m. 14 0	h. m. 14 24	h. m. 14 48	h. m. 15 12	h. m. 15 36	h. m. 16 0	h. m. 16 24
30	12	0	2279	2159	2041	1927	1816	1707	1601
31		24	2277	2157	2039	1925	1814	1705	1599
32		48	2275	2155	2037	1923	1812	1703	1598
33	13	12	2273	2153	2035	1921	1810	1702	1596
34		36	2271	2151	2033	1919	1808	1700	1594
35	14	0	2269	2149	2032	1918	1806	1698	1592
36		24	2267	2147	2030	1916	1805	1696	1591
37		48	2265	2145	2028	1914	1803	1694	1589
38	15	12	2263	2143	2026	1912	1801	1693	1587
39		36	2261	2141	2024	1910	1799	1691	1585
40	16	0	2259	2139	2022	1908	1797	1689	1584
41		24	2257	2137	2020	1906	1795	1687	1582
42		48	2255	2135	2018	1904	1794	1686	1580
43	17	12	2253	2133	2016	1903	1792	1684	1578
44		36	2251	2131	2014	1901	1790	1682	1577
45	18	0	2249	2129	2012	1899	1788	1680	1575
46		24	2247	2127	2010	1897	1786	1678	1573
47		48	2245	2125	2008	1895	1785	1677	1571
48	19	12	2243	2123	2007	1893	1783	1675	1570
49		36	2241	2121	2005	1891	1781	1673	1568
50	20	0	2239	2119	2003	1889	1779	1671	1566
51		24	2237	2117	2001	1888	1777	1670	1565
52		48	2235	2115	1999	1886	1775	1668	1563
53	21	12	2233	2113	1997	1884	1774	1666	1561
54		36	2231	2111	1995	1882	1772	1664	1559
55	22	0	2229	2109	1993	1880	1770	1663	1558
56		24	2227	2107	1991	1878	1768	1661	1556
57		48	2225	2105	1989	1876	1766	1659	1554
58	23	12	2223	2103	1987	1875	1765	1657	1552
59		36	2220	2101	1986	1873	1763	1655	1551
60	24	0	2218	2099	1984	1871	1761	1654	1549

LOGISTICAL LOGARITHMS.

Minute			42	43	44	45	46	47	48
			2520	2580	2640	2700	2760	2020	2880
	Time m.	s.	h. m. 16 48	h. m. 17 12	h. m. 17 36	h. m. 18 0	h. m. 18 24	h. m. 18 48	h. m. 19 12
0		0	1549	1447	1347	1249	1154	1061	969
1		24	1547	1445	1345	1248	1152	1059	968
2		48	1546	1443	1344	1246	1151	1057	966
3	1	12	1544	1442	1342	1245	1149	1056	965
4		36	1542	1440	1340	1243	1148	1054	963
5	2	0	1540	1438	1339	1241	1146	1053	962
6		24	1539	1437	1337	1240	1145	1051	960
7		48	1537	1435	1335	1238	1143	1050	959
8	3	12	1535	1433	1334	1237	1141	1048	957
9		36	1533	1432	1332	1235	1140	1047	956
10	4	0	1532	1430	1331	1233	1138	1045	954
11		24	1530	1428	1329	1232	1137	1044	953
12		48	1528	1427	1327	1230	1135	1042	951
13	5	12	1527	1425	1326	1229	1134	1041	950
14		36	1525	1423	1324	1227	1132	1039	948
15	6	0	1523	1422	1322	1225	1130	1037	947
16		24	1522	1420	1321	1224	1129	1036	945
17		48	1520	1418	1319	1222	1127	1034	944
18	7	12	1518	1417	1317	1221	1126	1033	942
19		36	1516	1415	1316	1219	1124	1031	941
20	8	0	1515	1413	1314	1217	1123	1030	939
21		24	1513	1412	1313	1216	1121	1028	938
22		48	1511	1410	1311	1214	1119	1027	936
23	9	12	1510	1408	1309	1213	1118	1025	935
24		36	1508	1407	1308	1211	1116	1024	933
25	10	0	1506	1405	1306	1209	1115	1022	932
26		24	1504	1403	1304	1208	1113	1021	930
27		48	1503	1402	1303	1206	1112	1019	929
28	11	12	1501	1400	1301	1205	1110	1018	927
29		36	1499	1398	1300	1203	1109	1016	926
30	12	0	1498	1397	1298	1201	1107	1015	924

LOGISTICAL LOGARITHMS.

Minute		42	43	44	45	46	47	48
		2520	2580	2640	2700	2760	2820	2880
	Time m. ſ.	h. m. 16 48	h. m. 17 12	h. m. 17 36	h. m. 18 0	h. m. 18 24	h. m. 18 48	h. m. 19 12
30	12 0	1498	1397	1298	1201	1107	1015	924
31	24	1496	1395	1296	1200	1105	1013	923
32	48	1494	1393	1295	1198	1104	1012	921
33	13 12	1493	1392	1293	1197	1102	1010	920
34	36	1491	1390	1291	1195	1101	1008	918
35	14 0	1489	1388	1290	1193	1099	1007	916
36	24	1488	1387	1288	1192	1098	1005	915
37	48	1486	1385	1287	1190	1096	1004	914
38	15 12	1484	1383	1285	1189	1095	1002	912
39	36	1482	1382	1283	1187	1093	1001	911
40	16 0	1481	1380	1282	1186	1091	999	909
41	24	1479	1378	1280	1184	1090	998	908
42	48	1477	1377	1278	1182	1088	996	906
43	17 12	1476	1375	1277	1181	1087	995	905
44	36	1474	1373	1275	1179	1085	993	903
45	18 0	1472	1372	1274	1178	1084	992	902
46	24	1470	1370	1272	1176	1082	990	900
47	48	1469	1368	1270	1174	1081	989	899
48	19 12	1467	1367	1269	1173	1079	987	897
49	36	1465	1365	1267	1171	1078	986	896
50	20 0	1464	1363	1266	1170	1076	984	894
51	24	1462	1362	1264	1168	1074	983	893
52	48	1460	1360	1262	1167	1073	981	891
53	21 12	1459	1359	1261	1165	1071	980	890
54	36	1457	1357	1259	1163	1070	978	888
55	22 0	1455	1355	1257	1162	1068	977	887
56	24	1454	1354	1256	1160	1067	975	885
57	48	1452	1352	1254	1159	1065	974	884
58	23 12	1450	1350	1253	1157	1064	972	883
59	36	1449	1349	1241	1156	1062	971	881
60	24 0	1447	1347	1249	1154	1061	969	880

LOGISTICAL LOGARITHMS.

Minute		49	50	51	52	53	54	55
		2940	3000	3060	3120	3180	3240	3300
	Time	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
	m. ſ.	19 36	20 0	20 24	20 48	21 12	21 36	22 0
0	0	880	792	706	621	539	458	378
1	24	879	790	704	620	537	456	377
2	48	877	789	703	619	536	455	375
3	1 12	875	787	702	617	535	454	374
4	36	874	786	700	616	533	452	373
5	2 0	872	784	699	615	532	451	371
6	24	871	783	697	613	531	450	370
7	48	869	782	696	612	529	448	369
8	3 12	868	780	694	610	528	447	367
9	36	866	779	693	609	526	446	266
10	4 0	865	777	692	608	525	444	365
11	24	863	776	690	606	524	443	363
12	48	862	774	689	605	522	442	362
13	5 12	860	773	687	603	521	440	361
14	36	859	772	686	602	520	439	359
15	6 0	857	770	685	601	518	438	358
16	24	856	769	683	599	517	436	357
17	48	855	767	682	598	516	435	356
18	7 12	853	766	680	596	514	434	354
19	36	852	764	679	595	513	432	353
20	8 0	850	763	678	594	512	431	352
21	24	849	762	676	592	510	430	350
22	48	847	760	675	591	509	428	349
23	9 12	846	759	673	590	507	427	348
24	36	844	757	672	588	506	426	346
25	10 0	843	756	670	587	505	424	345
26	24	841	754	669	585	503	423	344
27	48	840	753	668	584	502	422	342
28	11 12	838	751	666	583	501	420	341
29	36	837	750	665	581	499	419	340
30	12 0	835	749	663	580	498	418	339

LOGISTICAL LOGARITHMS.

Minute		49	50	51	52	53	54	55
		2940	3000	3060	3120	3180	3240	3300
	Time m. s.	h. m. 19 36	h. m. 20 0	h. m. 20 24	h. m. 20 48	h. m. 21 12	h. m. 21 36	h. m. 22 0
30	12 0	835	749	663	580	498	418	339
31	24	834	747	662	579	497	416	337
32	48	833	746	661	577	495	415	336
33	13 12	831	744	659	576	494	414	335
34	36	830	743	658	574	493	412	333
35	14 0	828	741	656	573	491	411	332
36	24	827	740	655	572	490	410	331
37	48	825	739	654	570	489	408	329
38	15 12	824	737	652	569	487	407	328
39	36	822	736	651	568	486	406	327
40	16 0	821	734	649	566	484	404	326
41	24	819	733	648	565	483	403	324
42	48	818	731	647	563	482	402	323
43	17 12	816	730	645	562	480	400	322
44	36	815	729	644	561	479	399	320
45	18 0	814	727	642	559	478	398	319
46	24	812	726	641	558	476	396	318
47	48	811	724	640	557	475	295	316
48	19 12	809	723	638	555	474	394	315
49	36	808	721	637	554	472	392	314
50	20 0	806	720	635	552	471	391	313
51	24	805	719	634	551	470	390	311
52	48	803	717	633	550	468	388	310
53	21 12	802	716	631	548	467	387	309
54	36	801	714	630	547	466	386	307
55	22 0	799	713	628	546	464	384	306
56	24	798	711	627	544	463	383	305
57	48	796	710	626	543	462	382	304
58	23 12	795	709	624	541	460	381	302
59	36	793	707	623	540	459	379	301
60	24 0	792	706	621	539	458	378	300

LOGISTICAL LOGARITHMS.

Miunte			56	57	58	59
			3360	3420	3480	3540
	Time m.	ſ.	h. m. 22 24	h. m. 22 48	h. m. 23 12	h. m. 23 36
0		0	300	223	147	73
1		24	298	221	146	72
2		48	297	220	145	71
3	1	12	296	219	143	69
4		36	294	218	142	68
5	2	0	293	216	141	67
6		24	292	215	140	66
7		48	291	214	139	64
8	3	12	289	213	137	63
9		36	288	211	136	62
10	4	0	287	210	135	61
11		24	285	209	134	60
12		48	284	208	132	58
13	5	12	283	206	131	57
14		36	282	205	130	56
15	6	0	280	204	129	55
16		24	279	202	127	53
17		48	278	201	126	52
18	7	12	276	200	125	51
19		36	275	199	124	50
20	8	0	274	197	122	49
21		24	273	196	121	47
22		48	271	195	120	46
23	9	12	270	194	119	45
24		36	269	192	117	44
25	10	0	267	191	116	42
26		24	266	190	114	41
27		48	265	189	113	40
28	11	12	264	187	112	39
29		36	262	186	111	38
30	12	0	261	185	110	36

LOGISTICAL LOGARITHMS.

Minute	Time		56	57	58	59
			3360	3420	3480	3540
	m.	ſ.	h. m. 22 24	h. m. 22 48	h. m. 23 12	h. m. 23 36
30	12	0	261	185	110	36
31		24	260	184	109	35
32		48	258	182	107	34
33	13	12	257	181	106	33
34		36	256	180	105	31
35	14	0	255	179	104	30
36		24	253	177	103	29
37		48	252	176	101	28
38	15	12	251	175	100	27
39		36	250	174	99	25
40	16	0	248	172	98	24
41		24	247	171	97	23
42		48	246	170	95	22
43	17	12	244	169	94	21
44		36	243	167	93	19
45	18	0	242	166	91	18
46		24	241	165	90	17
47		48	239	163	89	16
48	19	12	238	162	88	15
49		36	237	161	87	13
50	20	0	235	160	85	12
51		24	234	158	84	11
52		48	233	157	83	10
53	21	12	232	156	82	8
54		36	230	155	80	7
55	22	0	229	153	79	6
56		24	228	152	78	5
57		48	227	151	77	4
58	23	12	225	150	75	2
59		36	224	148	74	1
60	24	0	223	147	73	0

LOGISTICAL LOGARITHMS.

′	60	61	62	63	64	65	66	67	68	69	70	71	72
″	3600	3660	3720	3780	3840	3900	3960	4020	4080	4140	4200	4260	4320
0	0	71	142	212	280	347	414	479	543	607	670	733	793
1	1	72	143	213	281	348	415	480	544	608	671	734	794
2	2	74	144	214	282	350	416	481	545	609	673	735	795
3	4	75	145	215	283	351	417	482	546	610	674	736	796
4	5	76	147	216	285	352	418	483	548	611	675	737	797
5	6	77	148	217	286	353	419	484	549	612	676	738	798
6	7	79	149	218	287	354	420	485	550	613	677	739	799
7	8	80	150	219	288	355	421	486	551	614	678	740	800
8	9	81	151	221	289	356	422	488	552	615	679	741	801
9	11	82	152	222	290	357	423	489	553	616	680	742	802
10	12	83	154	223	291	358	425	490	554	617	682	743	803
11	13	84	155	224	292	359	426	491	555	618	683	744	804
12	14	86	156	225	294	361	427	492	556	619	684	745	805
13	15	87	157	226	295	362	428	493	557	620	685	746	806
14	17	88	158	228	296	363	429	494	558	621	686	747	807
15	18	89	159	229	297	364	430	495	559	622	687	748	808
16	19	90	161	230	298	365	431	496	560	623	688	749	809
17	20	91	162	231	299	366	432	497	561	624	690	750	810
18	21	93	163	232	300	367	433	498	562	626	691	751	811
19	22	94	164	233	301	368	434	499	563	627	692	752	812
20	24	95	165	235	303	370	436	500	565	628	693	753	813
21	25	96	166	236	304	371	437	501	566	629	694	754	814
22	26	98	168	237	305	372	438	502	567	630	695	755	815
23	27	99	169	238	306	373	439	503	568	631	696	756	816
24	29	100	170	239	307	374	440	504	569	632	697	757	817
25	30	101	171	240	308	375	441	505	570	633	698	758	818
26	31	102	172	241	309	376	442	506	571	634	699	759	819
27	32	103	173	242	310	377	443	507	572	635	700	760	820
28	33	105	175	244	312	378	444	509	573	636	701	761	821
29	35	106	176	245	313	379	445	510	574	637	702	762	822
30	36	107	177	246	314	381	446	511	575	638	703	763	823

LOGISTICAL LOGARITHMS.

′	60	61	62	63	64	65	66	67	68	69	70	71	72
″	3600	3660	3720	3780	3840	3900	3960	4080	4080	4140	4200	4260	4320
30	36	107	177	246	314	381	446	510	575	638	703	763	823
31	37	108	178	247	315	382	447	511	576	639	704	764	824
32	38	109	179	248	316	383	449	512	577	640	705	765	825
33	39	110	180	249	317	384	450	513	578	641	706	766	826
34	41	112	182	250	318	385	451	514	579	642	707	767	827
35	42	113	183	251	319	386	452	516	580	643	708	768	828
36	43	114	184	253	321	387	453	517	581	644	709	769	829
37	44	115	185	254	322	388	454	518	582	645	710	770	830
38	45	116	186	255	323	389	455	519	584	646	711	771	831
39	47	117	187	256	324	390	456	520	585	647	712	772	832
40	48	119	189	257	325	392	457	521	586	648	713	773	833
41	49	120	190	258	326	393	458	522	587	649	714	774	834
42	50	121	191	260	327	394	459	523	588	651	715	775	835
43	51	122	192	261	328	395	460	524	589	652	716	776	836
44	52	123	193	262	329	396	462	525	590	653	717	777	837
45	53	124	194	263	330	397	463	526	591	654	718	778	838
46	55	126	195	264	332	398	464	527	592	655	719	779	839
47	56	127	196	265	333	399	465	528	593	657	720	780	840
48	57	128	198	266	334	400	466	529	594	658	721	781	841
49	58	129	199	267	335	401	467	530	595	659	722	782	842
50	60	130	200	269	336	403	468	531	596	660	723	783	843
51	61	131	201	270	337	404	469	533	597	661	724	784	844
52	62	133	202	271	338	405	470	534	598	662	725	785	845
53	63	134	203	272	339	406	471	535	599	663	726	786	846
54	64	135	205	273	341	407	472	536	600	664	727	787	847
55	65	136	206	274	342	408	473	537	601	665	728	788	848
56	67	137	207	275	343	409	475	538	602	666	729	789	849
57	68	138	208	276	344	410	476	539	603	667	730	790	850
58	69	140	209	278	345	411	477	541	605	668	731	791	851
59	70	141	210	279	346	412	478	542	606	669	732	792	852
60	71	142	212	280	347	414	479	543	607	670	733	793	853

LOGISTICAL LOGARITHMS.

'	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87
″	4380	4440	4500	4560	4620	4680	4740	4800	4680	4920	4980	5040	5100	5160	5220
0	852	911	969	1026	1083	1139	1194	1249	1303	1356	1409	1461	1512	1563	1613
1	853	911	970	1027	1084	1140	1195	1250	1304	1357	1410	1462	1513	1564	1614
2	854	912	971	1028	1085	1141	1196	1251	1305	1358	1411	1463	1514	1565	1615
3	855	913	972	1029	1086	1142	1197	1252	1306	1359	1411	1463	1515	1566	1616
4	856	914	973	1030	1087	1143	1198	1253	1307	1360	1412	1464	1516	1567	1617
5	857	915	974	1031	1088	1144	1199	1254	1308	1361	1413	1465	1516	1567	1617
6	858	916	975	1032	1089	1145	1200	1255	1308	1362	1414	1466	1517	1568	1618
7	859	917	976	1033	1090	1146	1201	1255	1309	1362	1415	1467	1518	1569	1619
8	860	918	977	1034	1091	1147	1202	1256	1310	1363	1416	1468	1519	1570	1620
9	861	919	977	1035	1091	1147	1203	1257	1311	1364	1417	1469	1520	1571	1621
10	862	920	978	1036	1092	1148	1204	1258	1312	1365	1418	1470	1521	1572	1621
11	863	921	979	1037	1093	1149	1204	1259	1313	1366	1418	1470	1522	1572	1622
12	864	922	980	1038	1094	1150	1205	1260	1314	1367	1419	1471	1523	1573	1623
13	865	923	981	1039	1095	1151	1206	1261	1315	1368	1420	1472	1523	1574	1624
14	866	924	982	1040	1096	1152	1207	1262	1316	1369	1421	1473	1524	1575	1625
15	866	925	983	1041	1097	1153	1208	1263	1316	1369	1422	1474	1525	1576	1626
16	867	926	984	1042	1098	1154	1209	1264	1317	1370	1423	1475	1526	1577	1627
17	868	927	985	1042	1009	1155	1210	1264	1318	1371	1424	1476	1527	1577	1627
18	869	928	986	1043	1100	1156	1211	1265	1319	1372	1425	1476	1528	1578	1628
19	870	929	987	1044	1101	1157	1212	1266	1320	1373	1425	1477	1528	1579	1629
20	871	930	988	1045	1102	1158	1213	1267	1321	1374	1426	1478	1529	1580	1630
21	872	931	989	1046	1103	1159	1214	1268	1322	1375	1427	1479	1530	1581	1631
22	873	932	990	1047	1104	1160	1215	1269	1323	1376	1428	1480	1531	1582	1632
23	874	933	991	1048	1105	1160	1215	1270	1323	1376	1429	1481	1532	1582	1632
24	875	934	992	1049	1106	1161	1216	1271	1324	1377	1430	1482	1533	1583	1633
25	876	935	993	1050	1106	1162	1217	1272	1325	1378	1431	1482	1533	1584	1634
26	877	936	994	1051	1107	1163	1218	1273	1326	1379	1432	1483	1534	1585	1635
27	878	937	995	1052	1108	1164	1219	1273	1327	1380	1432	1484	1535	1586	1636
28	879	938	996	1053	1109	1165	1220	1274	1328	1381	1433	1485	1536	1587	1637
29	880	939	997	1054	1110	1166	1221	1275	1329	1382	1434	1486	1537	1587	1637
30	881	940	998	1055	1111	1167	1222	1276	1330	1383	1435	1487	1538	1588	1638

LOGISTICAL LOGARITHMS.

3	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
30	4440	4500	4560	4620	4680	4740	4800	4860	4920	4980	5040	5100	5160	5220	5280
81	940	998	1055	1111	1167	1222	1276	1330	1383	1435	1487	1538	1588	1638	1688
82	941	999	1056	1112	1168	1223	1277	1331	1383	1436	1487	1539	1589	1639	1688
83	942	1000	1057	1113	1169	1224	1278	1332	1384	1437	1488	1540	1590	1640	1689
84	943	1001	1058	1114	1170	1224	1279	1333	1385	1438	1489	1540	1591	1641	1690
85	944	1001	1059	1115	1171	1225	1280	1333	1386	1439	1490	1541	1592	1642	1691
86	945	1002	1059	1116	1171	1226	1281	1334	1387	1439	1491	1542	1592	1642	1692
87	946	1003	1060	1117	1172	1227	1282	1335	1388	1440	1492	1543	1593	1643	1693
88	947	1004	1061	1118	1173	1228	1282	1336	1389	1441	1493	1544	1594	1644	1693
89	948	1005	1062	1119	1174	1229	1283	1337	1390	1442	1494	1545	1595	1645	1694
90	948	1006	1063	1120	1175	1230	1284	1338	1390	1443	1494	1545	1596	1646	1695
91	949	1007	1064	1121	1176	1231	1285	1339	1391	1444	1495	1546	1597	1647	1696
92	950	1008	1065	1121	1177	1232	1286	1339	1392	1444	1496	1547	1597	1647	1696
93	951	1009	1066	1122	1178	1233	1287	1340	1393	1445	1497	1548	1598	1648	1697
94	952	1010	1067	1123	1179	1234	1288	1341	1394	1446	1498	1549	1599	1649	1698
95	953	1011	1068	1124	1180	1235	1289	1342	1395	1447	1499	1550	1600	1650	1699
96	954	1012	1069	1125	1181	1235	1290	1343	1396	1448	1499	1550	1601	1650	1700
97	955	1013	1070	1126	1182	1236	1291	1344	1397	1449	1500	1551	1602	1651	1701
98	956	1014	1071	1127	1182	1237	1291	1345	1397	1450	1501	1552	1602	1652	1701
99	957	1015	1072	1128	1183	1238	1292	1346	1398	1451	1502	1553	1603	1653	1702
00	958	1016	1073	1129	1184	1239	1293	1346	1399	1451	1503	1554	1604	1654	1703
01	959	1017	1074	1130	1185	1240	1294	1347	1400	1452	1504	1555	1605	1655	1704
02	960	1018	1075	1131	1186	1241	1295	1348	1401	1453	1505	1555	1606	1655	1705
03	961	1019	1076	1132	1187	1242	1296	1349	1402	1454	1506	1556	1607	1656	1706
04	962	1020	1076	1133	1188	1243	1297	1350	1403	1455	1506	1557	1608	1657	1706
05	963	1021	1077	1134	1189	1244	1298	1351	1404	1456	1507	1558	1608	1658	1707
06	964	1022	1078	1134	1190	1244	1298	1355	1404	1457	1508	1559	1609	1659	1708
07	965	1023	1079	1135	1191	1245	1299	1353	1405	1458	1509	1560	1610	1660	1709
08	966	1023	1080	1136	1192	1246	1300	1354	1406	1458	1510	1560	1611	1660	1709
09	967	1024	1081	1137	1193	1247	1301	1354	1407	1459	1511	1561	1612	1661	1710
10	968	1025	1082	1138	1193	1248	1302	1355	1408	1460	1511	1562	1612	1662	1711
11	969	1026	1083	1139	1194	1249	1303	135[illegible]	1409	1461	1512	1563	1613	1663	1712

LOGISTICAL LOGARITHMS.

′	89	90	91	92	93	94	95	96	97	98	99	100	101
″	5340	5400	5460	5520	5580	5640	5700	5760	5820	5880	5940	6000	6060
0	1712	1761	1809	1856	1903	1949	1995	2041	2086	2130	2175	2218	2261
1	1713	1761	1809	1857	1904	1950	1996	2041	2086	2131	2175	2219	2262
2	1714	1762	1810	1858	1905	1951	1997	2042	2087	2132	2176	2220	2263
3	1714	1763	1811	1858	1905	1952	1997	2043	2088	2132	2176	2220	2263
4	1715	1764	1812	1859	1906	1953	1998	2044	2089	2133	2177	2221	2264
5	1716	1764	1812	1860	1907	1953	1999	2044	2089	2134	2178	2222	2265
6	1717	1765	1813	1861	1908	1954	2000	2045	2090	2135	2179	2223	2266
7	1718	1766	1814	1861	1908	1955	2001	2046	2091	2135	2179	2223	2267
8	1719	1767	1815	1862	1909	1956	2002	2047	2092	2136	2180	2224	2267
9	1719	1768	1816	1863	1909	1956	2002	2047	2092	2137	2181	2224	2268
10	1720	1769	1817	1864	1910	1957	2003	2048	2093	2138	2182	2225	2269
11	1721	1769	1817	1864	1911	1958	2004	2049	2094	2138	2182	2226	2269
12	1722	1770	1818	1865	1912	1959	2005	2050	2095	2139	2183	2227	2270
13	1722	1771	1819	1866	1913	1959	2006	2050	2095	2140	2184	2228	2270
14	1723	1772	1820	1867	1914	1960	2007	2051	2096	2141	2185	2228	2271
15	1724	1772	1820	1868	1914	1961	2008	2052	2097	2141	2185	2229	2272
16	1725	1773	1821	1869	1915	1962	2008	2053	2098	2142	2186	2230	2273
17	1726	1774	1822	1869	1916	1962	2009	2053	2098	2143	2187	2230	2273
18	1727	1775	1823	1870	1917	1963	2009	2054	2099	2144	2188	2231	2274
19	1727	1776	1823	1871	1918	1964	2010	2055	2100	2144	2188	2232	2275
20	1728	1777	1824	1872	1919	1965	2011	2056	2101	2145	2189	2233	2276
21	1729	1778	1825	1872	1919	1965	2011	2056	2101	2146	2190	2233	2276
22	1730	1778	1826	1873	1920	1966	2012	2057	2102	2147	2191	2234	2277
23	1731	1779	1827	1874	1921	1967	2013	2058	2103	2147	2191	2235	2277
24	1732	1780	1828	1875	1922	1968	2014	2059	2104	2148	2192	2236	2278
25	1732	1780	1828	1875	1922	1968	2014	2059	2104	2149	2193	2236	2279
26	1733	1781	1829	1876	1923	1969	2015	2060	2105	2150	2194	2237	2280
27	1734	1782	1830	1877	1924	1970	2016	2061	2106	2150	2194	2237	2280
28	1735	1783	1831	1878	1925	1971	2017	2062	2107	2151	2195	2238	2281
29	1735	1784	1831	1879	1925	1972	2017	2062	2107	2152	2195	2239	2282
30	1736	1785	1832	1880	1926	1973	2018	2063	2108	2153	2196	2240	2283

LOGISTICAL LOGARITHMS.

	89	90	91	92	93	94	95	96	97	98	99	100	101	102
	5340	5400	5460	5520	5580	5640	5700	5760	5820	5880	5940	6000	6060	6120
30	1736	1785	1832	1880	1926	1973	2018	2063	2108	2153	2196	2240	2283	2325
31	1737	1785	1833	1880	1927	1973	2019	2064	2109	2153	2197	2240	2283	2326
32	1738	1786	1834	1881	1928	1974	2020	2065	2110	2154	2198	2241	2284	2327
33	1739	1787	1835	1882	1928	1975	2020	2065	2110	2154	2198	2242	2285	2327
34	1740	1788	1836	1883	1929	1976	2021	2066	2111	2155	2199	2243	2286	2328
35	1740	1788	1836	1883	1930	1976	2022	2067	2112	2156	2200	2243	2286	2329
36	1741	1789	1837	1884	1931	1977	2023	2068	2113	2157	2201	2244	2287	2330
37	1742	1790	1838	1885	1931	1978	2023	2068	2113	2157	2201	2245	2288	2330
38	1743	1791	1839	1886	1932	1979	2024	2069	2114	2158	2202	2246	2289	2331
39	1743	1792	1839	1887	1933	1979	2025	2070	2115	2159	2203	2246	2289	2331
40	1744	1793	1840	1888	1934	1980	2026	2071	2116	2160	2204	2247	2290	2332
41	1745	1793	1841	1889	1935	1981	2026	2071	2116	2160	2204	2247	2290	2333
42	1746	1794	1842	1890	1936	1982	2027	2072	2117	2161	2205	2248	2291	2334
43	1747	1795	1842	1891	1936	1982	2028	2073	2118	2162	2205	2249	2292	2334
44	1748	1796	1843	1891	1937	1983	2029	2074	2119	2163	2206	2250	2293	2335
45	1748	1796	1844	1892	1938	1984	2029	2074	2119	2163	2207	2250	2293	2336
46	1774	1797	1845	1893	1939	1985	2030	2075	2120	2164	2208	2251	2294	2337
47	1775	1798	1846	1894	1939	1985	2031	2076	2121	2165	2208	2252	2295	2337
48	1775	1799	1847	1894	1940	1986	2032	2077	2122	2166	2209	2253	2296	2338
49	1752	1800	1847	1895	1941	1987	2032	2077	2122	2167	2210	2253	2296	2339
50	1753	1801	1848	1895	1942	1988	2033	2078	2123	2167	2211	2254	2297	2340
51	1753	1801	1849	1896	1942	1988	2034	2079	2124	2168	2211	2255	2298	2340
52	1754	1802	1850	1897	1943	1989	2035	2080	2125	2169	2212	2256	2299	2341
53	1755	1803	1850	1897	1944	1990	2035	2080	2125	2169	2212	2256	2299	2341
54	1756	1804	1851	1898	1945	1991	2036	2081	2126	2170	2213	2257	2300	2342
55	1756	1804	1852	1899	1946	1991	2037	2082	2126	2171	2214	2258	2300	2343
56	1757	1805	1853	1900	1947	1992	2038	2083	2127	2172	2215	2259	2301	2344
57	1758	1806	1853	1900	1947	1993	2038	2083	2128	2172	2216	2259	2302	2344
58	1759	1807	1854	1901	1948	1994	2039	2084	2129	2173	2217	2260	2303	2345
59	1760	1808	1855	1902	1948	1994	2040	2085	2129	2174	2217	2260	2303	2346
60	1761	1809	1856	1903	1949	1995	2041	2086	2130	2175	2218	2261	2304	2347

Canon of the Moons latitude.

Dodeca.			0		1			2 Sep. Aſ.		
mor.			6		7		8 mer deſ.			
gr.	Pa.	1	11	Pa.	1	11	Pa.	1	11	gr.
0	0	0	0	2	29	52	4	19	43	30
1	0	5	14	2	34	22	4	22	18	29
2	0	10	27	2	38	50	4	24	49	28
3	0	15	41	2	43	15	4	27	14	27
4	0	20	54	2	47	37	4	29	34	26
5	0	26	7	2	51	56	4	31	50	25
6	0	31	19	2	56	11	4	34	6	24
7	0	36	31	3	0	24	4	36	6	23
8	0	41	42	3	4	33	4	38	6	22
9	0	46	52	3	8	39	4	40	2	21
10	0	52	2	3	12	42	4	41	52	20
11	0	57	10	3	16	41	4	43	37	19
12	1	2	18	3	20	36	4	45	17	18
13	1	7	24	3	24	28	4	49	57	17
14	1	12	29	3	28	16	4	48	22	16
15	1	17	33	3	32	0	4	49	45	15
16	1	22	35	3	35	40	4	51	4	14
17	1	27	36	3	39	17	4	52	17	13
18	1	32	36	3	42	49	4	53	26	12
19	1	37	34	3	46	17	4	54	29	11
20	1	42	30	3	49	42	4	55	26	10
21	1	47	24	3	53	2	4	56	18	9
22	1	52	16	3	56	17	4	57	4	8
23	1	57	6	3	54	29	4	57	45	7
24	2	1	54	4	2	36	4	58	21	6
25	2	6	40	4	5	38	4	58	51	5
26	2	11	23	4	8	37	4	59	16	4
27	2	16	4	4	11	30	4	59	35	3
28	2	20	42	4	14	19	4	59	49	2
29	2	25	18	4	17	4	4	59	57	1
30	2	29	52	4	19	42	5	0	0	0
	Dode.		11		10		9 Me. Aſ.			
	tem.				4		3 Sep. deſ.			

If the difference be 5 4 3.

Uſe of the Table.

YOU muſt ſubſtract the place of the Dragon's Head from the Moon, and enter with the difference of ſigns and degrees: If your difference of ſigns be 0. 1. or 2. 6 7 8. you mſt look for your difference under thoſe coluns, and enter with the number of degrees downward, on the left hand, and over againſt them on the right hand, you have the latitude, and over againſt the difference of ſigns, its denomination, either Sep. Aſc. Mer. Deſ. If your difference be 11. 10. 10,5·4 or 3. you enter upward, with the number of degrees on the right hand, and over againſt them is the latitude Mer. If the difference be 11. 10. or 9. Septen.

Example.

23. of January the Moon is 13. 18. of Virgo, or 5. Sig. 13. gr. 18. min. the Dragon's Head is in 8. 22. of Leo, or 4. Sig. 8. gr. 23 min. the difference is 1. Sig. 4 gr. 56 min. In the upper column e I find 1. and under it over againſt 4. grad. 2. 47. 37. and in the head of the column over againſt 1. I ſee on the right hand Sepr. Aſc. ſo then I ſay the Lat. of the Moon is that day at noon 2. 47. 37. Sept. Aſc. If you will have it more exact, work it by proportion: Where ſubſtraction cannot be otherwiſe made, and add 12 ſigns to the place of the Moon,

SEXAGINARY TABLES,

SERVING TO

MULTIPLY, DIVIDE, AND FIND OUT

THE

PROPORTIONAL PART.

SEXAGENARY TABLES.

	1		2		3		4		5		6		7		8		9		10	
1	0	1	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	10
2	0	2	0	4	0	6	0	8	0	10	0	12	0	14	0	16	0	18	0	20
3	0	3	0	6	0	9	0	12	0	15	0	18	0	21	0	24	0	27	0	30
4	0	4	0	8	0	12	0	16	0	20	0	24	0	28	0	32	0	36	0	40
5	0	5	0	10	0	15	0	20	0	25	0	30	0	35	0	40	0	45	0	50
6	0	6	0	12	0	18	0	24	0	30	0	36	0	42	0	48	0	54	0	0
7	0	7	0	14	0	21	0	28	0	35	0	42	0	49	0	56	1	3	1	10
8	0	8	0	16	0	24	0	32	0	40	0	48	0	56	1	4	1	12	1	20
9	0	9	0	18	0	27	0	36	0	45	0	54	1	3	1	12	1	21	1	30
10	0	10	0	20	0	30	0	40	0	50	1	0	1	10	1	20	1	30	1	40
11	0	11	0	22	0	33	0	44	0	55	1	6	1	17	1	28	1	39	1	50
12	0	12	0	24	0	36	0	48	1	0	1	12	1	24	1	36	1	48	2	0
13	0	13	0	26	0	39	0	52	1	5	1	18	1	31	1	44	1	57	2	10
14	0	14	0	28	0	42	0	56	1	10	1	24	1	38	1	52	2	6	2	20
15	0	15	0	30	0	45	1	0	1	15	1	30	1	45	2	0	2	15	2	30
16	0	16	0	32	0	48	1	4	1	20	1	36	1	52	2	8	2	24	2	40
17	0	17	0	34	0	51	1	8	1	25	1	42	1	59	2	16	2	33	2	50
18	0	18	0	36	0	54	1	12	1	30	1	48	2	6	2	24	2	42	3	0
19	0	19	0	38	0	57	1	16	1	35	1	54	2	13	2	32	2	51	3	10
20	0	20	0	40	1	0	1	20	1	40	2	0	2	20	2	40	3	0	3	20
21	0	21	0	42	1	3	1	24	1	45	2	6	2	27	2	48	3	9	3	30
22	0	22	0	44	1	6	1	28	1	50	2	12	2	34	2	56	3	18	3	40
23	0	23	0	46	1	9	1	32	1	55	2	18	2	41	3	4	3	27	3	50
24	0	24	0	48	1	12	1	36	2	0	2	24	2	48	3	12	3	36	4	0
25	0	25	0	50	1	15	1	40	2	5	2	30	2	55	3	20	3	45	4	10
26	0	26	0	52	1	18	1	44	2	10	2	36	3	2	3	28	3	54	4	20
27	0	27	0	54	1	21	1	48	2	15	2	42	3	9	3	36	4	3	4	30
28	0	28	0	56	1	24	1	52	2	20	2	48	3	16	3	44	4	12	4	40
29	0	29	0	58	1	27	1	56	2	25	2	54	3	23	3	52	4	21	4	50
30	0	30	1	0	1	30	2	0	2	30	3	0	3	30	4	0	4	30	5	0
	1		2		3		4		5		6		7		8		9		10	

SEXAGENARY TABLES.

	1		2		3		4		5		6		7		8		9		10	
31	0	31	1	2	1	33	2	4	2	35	3	6	3	37	4	8	4	39	5	10
32	0	32	1	4	1	36	2	8	2	40	3	12	3	44	4	16	4	48	5	10
33	0	33	1	6	1	39	2	12	2	45	3	18	3	51	4	24	4	57	5	30
34	0	34	1	8	1	42	2	16	2	50	3	24	3	58	4	32	5	6	5	40
35	0	35	1	10	1	45	2	20	2	55	3	30	4	5	4	40	5	15	5	50
36	0	36	1	12	1	48	2	24	3	0	3	36	4	12	4	48	5	24	6	0
37	0	37	1	14	1	51	2	28	3	5	3	42	4	19	4	56	5	33	6	10
38	0	38	1	16	1	54	2	32	3	10	3	48	4	26	5	4	5	42	6	20
39	0	39	1	18	1	57	2	36	3	15	3	54	4	33	5	12	5	51	6	30
40	0	40	1	20	2	0	2	40	3	20	4	0	0	40	5	20	6	0	6	40
41	0	41	1	22	2	3	2	44	3	25	4	6	4	47	5	28	6	9	6	50
42	0	42	1	24	2	6	2	48	3	30	4	12	4	54	5	36	6	18	7	0
43	0	43	1	26	2	9	2	52	3	35	4	18	5	1	5	44	6	27	7	10
44	0	44	1	28	2	12	2	56	3	40	4	24	5	8	5	52	6	36	7	20
45	0	45	1	30	2	15	3	0	3	45	4	30	5	15	6	0	6	45	7	30
46	0	46	1	32	2	18	3	4	3	50	4	36	5	22	6	8	6	54	7	40
47	0	47	1	34	2	21	3	8	3	55	4	42	5	29	6	16	7	3	7	50
48	0	48	1	36	2	24	3	12	4	0	4	48	5	36	6	24	7	12	8	0
49	0	49	1	38	2	27	3	16	4	5	4	54	5	43	6	32	7	21	8	10
50	0	50	1	40	2	30	3	20	4	10	5	0	5	50	6	40	7	30	8	20
51	0	51	1	42	2	33	3	24	4	15	5	6	5	57	6	48	7	39	8	30
52	0	52	1	44	2	36	3	28	4	20	5	12	6	4	6	56	7	48	8	40
53	0	53	1	46	2	39	3	32	4	25	5	18	6	11	7	4	7	57	8	50
54	0	54	1	48	2	42	3	36	4	30	5	24	6	18	7	12	8	6	9	0
55	0	55	1	50	2	45	3	40	4	35	5	30	6	25	7	20	8	15	9	10
56	0	56	1	52	2	48	3	44	4	40	5	36	6	32	7	28	8	24	9	20
57	0	57	1	54	2	51	3	48	4	45	5	42	5	39	7	36	8	33	9	30
58	0	58	1	56	2	54	3	52	4	50	5	48	5	46	7	44	8	42	9	40
59	0	59	1	58	2	57	3	56	4	55	5	54	6	53	7	52	8	51	9	50
60	1	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	10	0
	1		2		3		4		5		6		7		8		9		10	

SEXAGENARY TABLES.

	11		12		13		14		15		16		17		18		19		20	
1	0	11	0	12	0	13	0	14	0	15	0	16	0	17	0	18	0	19	0	20
2	0	22	0	24	0	26	0	28	0	30	0	32	0	34	0	36	0	38	0	40
3	0	33	0	36	0	39	0	42	0	45	0	48	0	51	0	54	0	57	1	0
4	0	44	0	48	0	52	0	56	1	0	1	4	1	8	1	12	1	16	1	20
5	0	55	1	0	1	5	1	10	1	15	1	20	1	25	1	30	1	35	1	40
6	1	6	1	12	1	18	1	24	1	30	1	36	1	42	1	48	1	54	2	0
7	1	17	1	24	1	31	1	38	1	45	1	52	1	59	2	6	2	13	2	20
8	1	28	1	36	1	44	1	52	2	0	2	8	2	16	2	24	2	32	2	40
9	1	39	1	48	1	57	2	6	2	15	2	24	2	33	2	42	2	51	3	0
10	1	50	2	0	2	10	2	20	2	30	2	40	2	50	3	0	3	10	3	20
11	2	1	2	12	2	23	2	34	2	45	2	56	3	7	3	18	3	29	3	40
12	2	12	2	24	2	36	2	48	3	0	3	12	3	24	3	36	3	48	4	0
13	2	23	2	36	2	49	3	2	3	15	3	28	3	41	3	54	4	7	4	20
14	2	34	2	48	3	2	3	16	3	30	3	44	3	58	4	12	4	26	4	40
15	2	45	3	0	3	15	3	30	3	45	4	0	4	15	4	30	4	45	5	0
16	2	56	3	12	3	28	3	44	4	0	4	16	4	32	4	48	5	4	5	20
17	3	7	3	24	3	41	3	58	4	15	4	32	4	49	5	6	5	23	5	40
18	3	18	3	36	3	54	4	12	4	30	4	48	5	6	5	24	5	42	6	0
19	3	29	3	48	4	7	4	26	4	45	5	4	5	23	5	42	6	1	6	20
20	3	40	4	0	4	20	4	40	5	0	5	20	5	40	6	0	6	20	6	40
21	3	51	4	12	4	33	4	54	5	15	5	36	5	57	6	28	6	39	7	0
22	4	2	4	24	4	46	5	8	5	30	5	52	6	14	6	36	6	58	7	20
23	4	13	4	36	4	59	5	22	5	45	6	8	6	31	6	54	7	17	7	40
24	4	24	4	48	5	12	5	36	6	0	6	24	6	48	7	12	7	36	8	0
25	4	35	5	0	5	25	5	50	6	15	6	40	7	5	7	30	7	55	8	20
26	4	46	5	12	5	38	6	4	6	30	6	56	7	22	7	48	8	14	8	40
27	4	57	5	24	5	51	6	18	6	45	7	12	7	39	8	6	8	33	9	0
28	5	8	5	36	6	4	6	32	7	0	7	28	7	56	8	24	8	52	9	20
29	5	19	5	48	6	17	6	46	7	15	7	44	8	13	8	42	9	11	9	40
30	5	30	6	0	6	30	7	0	7	30	8	0	8	30	9	0	9	30	10	0
	11		12		13		14		15		16		17		18		19		20	

SEXAGENARY TABLES.

	11	12	13	14	15	16	17	18	19	20
31	5 41	6 12	6 43	7 14	7 45	8 16	8 47	9 18	9 49	10 20
32	5 52	6 24	6 56	7 28	8 0	8 31	9 4	9 36	10 8	10 40
33	6 3	6 36	7 9	7 42	8 15	8 48	9 21	9 54	10 27	11 0
34	6 14	6 48	7 22	7 56	8 30	8 4	9 38	10 12	10 46	11 20
35	6 25	7 0	7 35	8 10	8 45	9 20	9 55	10 30	11 5	11 40
36	6 36	7 12	7 48	8 24	9 0	9 36	10 12	10 48	11 24	12 0
37	6 47	7 24	8 1	8 38	9 15	9 52	10 29	11 6	11 43	12 20
38	6 58	7 36	8 14	8 52	9 30	10 8	10 46	11 24	12 2	12 40
39	7 9	7 48	8 27	9 6	9 45	10 24	11 3	11 42	12 1	13 0
40	7 20	8 0	8 40	9 20	10 0	10 40	11 20	12 0	12 40	13 20
41	7 31	8 12	8 53	9 34	10 15	10 56	11 37	12 18	12 59	11 40
42	7 42	8 24	9 6	9 48	10 30	11 12	11 54	12 36	13 18	14 0
43	7 53	8 36	9 19	10 2	10 45	11 28	12 11	12 54	13 37	14 20
44	8 4	8 48	9 32	10 16	11 0	11 44	12 28	13 12	13 56	14 40
45	8 15	9 0	9 45	10 30	11 15	12 0	12 45	13 30	14 15	15 0
46	8 26	8 12	9 58	10 44	11 30	12 16	13 2	13 48	14 34	15 20
47	8 37	9 24	10 11	10 58	11 45	12 32	13 19	14 6	14 53	15 40
48	8 48	9 36	10 24	11 12	12 0	12 48	13 36	14 24	15 12	16 0
49	8 59	9 48	10 37	11 26	12 15	13 4	13 53	14 42	15 31	16 20
50	9 10	10 0	10 50	11 40	12 30	13 20	14 10	15 0	15 50	16 40
51	9 21	10 12	11 3	11 54	12 45	13 36	14 27	15 18	16 9	17 0
52	9 32	10 24	11 16	12 8	13 0	13 52	14 44	15 36	16 28	17 20
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SEXAGENARY TABLES.

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SEXAGENARY TABLES.

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SEXAGENARY TABLES.

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SEXAGENARY TABLES.

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SEXAGENARY TABLES.

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11	14	51	15	2	15	13	15	24	15	35	15	46	15	57	16	8	16	19	16	30
12	16	12	16	24	16	36	16	48	17	0	17	12	17	24	17	36	17	48	18	0
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14	18	54	19	8	19	22	19	36	19	50	20	4	20	18	20	32	20	46	21	0
15	20	15	20	30	20	45	21	0	21	15	21	30	21	45	22	0	22	15	22	30
16	21	36	21	52	22	8	22	24	22	40	22	56	23	12	23	28	23	44	24	0
17	22	57	23	14	23	31	23	48	24	5	24	22	24	39	24	56	25	13	25	30
18	24	18	24	36	24	54	25	12	25	30	25	48	26	6	26	24	26	42	27	0
19	25	39	25	58	26	17	26	36	26	55	27	14	27	33	27	52	28	11	28	30
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22	29	42	30	4	30	26	30	48	31	10	31	32	31	54	32	16	32	38	33	0
23	31	3	31	26	31	49	32	12	32	35	32	58	33	21	33	44	34	7	34	30
24	32	24	32	48	33	12	33	36	34	0	34	24	34	48	35	12	35	36	36	0
25	33	45	34	10	34	35	35	0	35	25	35	50	36	15	36	40	37	5	37	30
26	35	6	35	32	35	58	36	24	36	50	37	16	37	42	38	8	38	34	39	0
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28	37	48	38	16	38	44	39	12	39	40	40	8	40	36	41	4	41	32	42	0
29	39	9	39	38	40	7	40	36	41	5	41	34	42	3	42	32	43	1	43	30
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	81		82		83		84		84		86		87		88		89		90	

SEXAGENARY TABLES.

	81		82		83		84		85		86		87		88		89		90	
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34	45	54	46	28	47	2	47	36	48	10	48	44	49	18	49	52	50	26	51	0
35	47	15	47	50	48	25	49	0	49	35	50	10	50	45	51	20	51	55	52	30
36	48	36	49	12	49	48	50	24	51	0	51	36	52	12	52	48	53	24	54	0
37	49	57	50	34	51	11	51	48	52	25	53	2	53	39	54	16	54	53	55	30
38	51	18	51	56	52	34	53	12	53	50	54	28	55	6	55	44	56	22	57	0
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40	54	0	54	40	55	20	56	0	56	40	57	20	58	0	58	40	59	20	69	0
41	55	21	56	2	56	43	57	24	58	5	58	46	59	27	60	8	60	49	61	20
42	56	42	57	24	58	6	58	48	59	30	60	12	60	54	61	36	62	18	63	0
43	58	3	58	46	59	29	60	12	60	55	61	38	62	21	63	4	63	47	64	30
44	59	24	60	8	60	52	61	36	62	20	63	4	63	48	64	32	65	16	66	0
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46	62	6	62	52	63	38	64	24	65	10	65	56	66	42	67	28	68	14	69	0
47	63	27	64	14	65	1	65	48	66	35	67	22	68	9	68	56	69	43	70	30
48	64	48	65	36	66	24	67	12	68	0	68	48	69	36	70	24	71	12	72	0
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51	68	51	69	42	70	33	71	24	72	15	73	6	73	57	74	48	75	39	76	30
52	70	12	71	4	71	56	72	48	73	40	74	32	75	24	76	16	77	8	78	0
53	71	33	72	26	73	19	74	12	75	5	75	58	76	51	77	44	78	37	79	30
54	72	54	73	48	74	42	75	36	76	30	77	24	78	18	79	12	80	6	81	0
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56	75	36	76	32	77	28	78	24	79	20	80	16	81	12	82	8	83	4	84	0
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58	78	18	79	16	80	14	81	12	82	10	83	8	84	6	85	4	86	2	87	0
59	79	39	80	38	81	37	82	36	83	35	84	34	85	33	86	32	87	31	88	30
60	81	0	82	0	83	0	84	0	85	0	86	0	87	0	88	0	89	0	90	0
	81		82		83		84		85		86		87		88		89		90	

SEXAGENARY TABLES.

	91		92		93		94		95		96		97		98		99		100	
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3	4	33	4	36	4	39	4	42	4	45	4	48	4	51	4	54	4	57	5	0
4	6	4	6	8	6	12	6	16	6	20	6	24	6	28	6	32	6	36	6	40
5	7	35	7	40	7	45	7	50	7	55	8	0	8	5	8	10	8	15	8	20
6	9	6	9	12	9	18	9	24	9	30	9	36	9	42	9	48	9	54	10	0
7	10	37	10	44	10	51	10	58	11	5	11	12	11	19	11	26	11	33	11	40
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9	13	39	13	48	13	57	14	6	14	15	14	24	14	33	14	42	14	51	15	0
10	15	10	15	20	15	30	15	40	15	50	16	0	16	10	16	20	16	30	16	40
11	16	41	16	52	17	3	17	14	17	25	17	36	17	47	17	58	18	9	18	20
12	18	12	18	24	18	36	18	48	19	0	19	12	19	24	19	36	19	48	20	0
13	19	43	19	56	20	9	20	22	20	35	20	48	21	1	21	14	21	27	21	40
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15	22	45	23	0	23	15	23	30	23	45	24	0	24	15	24	30	24	45	25	0
16	24	16	24	32	24	48	25	4	25	20	25	36	25	52	26	8	26	24	26	40
17	25	47	26	4	26	21	26	38	26	55	27	12	27	29	27	46	28	3	28	20
18	27	18	27	36	27	54	28	12	28	30	28	48	29	6	29	24	29	42	30	0
19	28	49	29	8	29	27	28	46	30	5	30	24	30	43	31	2	31	21	31	40
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21	31	51	32	12	32	33	32	54	33	15	33	36	33	57	34	18	34	39	35	0
22	33	22	33	44	34	6	34	28	34	50	35	12	35	34	35	56	36	18	36	40
23	34	53	35	16	35	39	36	2	36	25	36	48	37	11	37	34	37	57	38	20
24	36	24	36	48	37	12	37	36	38	0	38	24	38	48	39	12	39	36	40	0
25	37	55	38	20	38	45	39	10	39	35	40	0	40	25	40	50	41	15	41	40
26	39	26	39	52	40	18	40	44	41	10	41	36	42	2	42	28	42	57	43	20
27	40	57	41	24	41	51	42	18	44	45	43	12	43	39	44	6	44	32	45	0
28	42	28	42	56	43	24	43	52	44	20	44	48	45	16	45	44	46	12	46	40
29	43	59	44	28	44	57	45	26	45	55	46	24	46	53	47	22	47	51	48	20
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	91		92		93		94		95		96		97		98		99		100	

SEXAGENARY TABLES.

	91		92		93		94		95		96		97		98		99		100	
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33	50	3	50	36	51	9	51	42	52	15	52	48	53	21	53	54	54	27	55	0
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35	53	5	53	40	54	15	54	50	55	25	56	0	56	35	57	10	57	45	58	20
36	54	36	55	12	55	48	56	24	57	0	57	36	58	12	58	48	59	24	60	0
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39	59	9	59	48	60	27	61	6	61	45	62	24	63	3	63	42	64	21	65	0
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41	62	11	62	52	63	33	64	14	64	55	65	36	66	17	66	58	67	39	68	20
42	63	42	64	24	65	6	65	48	66	30	67	12	67	54	68	36	69	18	70	0
43	65	13	65	56	66	39	67	22	68	5	68	48	69	31	70	14	70	57	71	40
44	66	44	67	28	68	12	68	56	69	40	70	24	71	8	71	52	72	36	73	20
45	68	15	69	0	69	45	70	30	71	15	72	0	72	45	73	30	74	15	75	0
46	69	46	70	32	71	18	72	4	72	50	73	36	74	22	75	8	75	54	76	40
47	71	17	72	4	72	51	73	38	74	25	75	12	75	59	76	46	77	33	78	20
48	72	48	73	36	74	24	75	12	76	0	76	48	77	36	78	24	79	12	80	0
49	74	19	75	8	75	57	76	46	77	35	78	24	79	13	80	2	80	51	81	40
50	75	50	76	40	77	30	78	20	79	10	80	0	80	50	81	40	82	30	83	20
51	77	21	78	12	79	3	79	54	80	45	81	36	82	27	83	18	84	9	85	0
52	79	52	79	44	80	36	81	28	82	20	83	12	84	4	84	56	85	48	86	40
53	80	23	81	16	82	9	83	2	83	55	84	48	85	41	86	34	87	27	88	20
54	81	54	82	48	83	42	84	36	85	30	86	24	87	18	88	12	89	6	90	0
55	83	25	84	20	85	15	86	10	87	5	88	0	88	55	89	50	90	45	91	40
56	84	56	85	52	86	48	87	44	88	40	89	36	90	32	91	28	92	24	93	20
57	86	27	87	24	88	21	89	18	90	15	91	12	92	9	93	6	94	3	95	0
58	87	58	88	56	89	54	90	52	91	50	92	48	93	46	94	44	95	42	96	40
59	89	29	90	28	91	27	92	26	93	25	94	24	95	23	96	22	97	2	98	20
60	91	0	92	0	93	0	94	0	95	0	96	0	97	0	98	0	99	0	100	0
	91		92		93		94		95		96		97		98		99		100	

SEXAGENARY TABLES.

	101		102		103		104		105		106		107		108		109		110	
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5	8	25	8	30	8	35	8	40	8	45	8	50	8	55	9	0	9	5	9	10
6	10	6	10	12	10	18	10	24	10	30	10	36	10	42	10	48	10	54	11	0
7	11	47	11	54	12	1	12	8	12	15	12	22	12	29	12	36	12	43	12	50
8	13	28	13	36	13	44	13	52	14	0	14	8	14	16	14	24	14	32	14	40
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12	20	12	20	24	20	36	20	48	21	0	21	12	21	24	21	36	21	48	22	0
13	21	53	22	6	22	19	22	32	22	45	22	58	23	11	23	24	23	37	23	50
14	23	34	23	48	24	2	24	16	24	30	24	44	24	58	25	12	25	26	25	40
15	25	15	25	30	25	45	26	0	26	15	26	30	26	45	27	0	27	15	27	30
16	26	56	27	12	27	28	27	44	28	0	28	16	28	32	28	48	29	4	29	20
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21	35	21	35	42	36	3	36	34	36	45	37	6	37	27	37	48	38	9	38	30
22	37	2	37	24	37	46	38	8	38	30	38	52	39	14	39	36	39	58	40	20
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25	42	5	42	30	42	55	43	20	43	45	44	10	44	35	45	0	45	25	45	50
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	101		102		103		104		105		106		107		108		109		110	

SEXAGENARY TABLES.

	101		102		103		104		105		106		107		108		109		110	
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32	53	52	54	24	54	56	55	28	56	0	56	32	57	4	57	39	58	08	58	40
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36	60	36	61	12	61	48	61	24	63	0	63	36	64	12	64	48	65	24	66	0
37	62	17	62	54	63	31	64	8	64	45	65	22	65	59	66	36	67	13	67	50
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42	70	42	71	24	72	6	72	48	73	30	74	12	74	54	75	36	76	18	77	0
43	72	23	73	6	73	49	74	32	75	15	75	58	76	41	77	24	78	7	78	50
44	74	4	74	48	75	32	76	16	77	0	77	44	78	28	79	12	79	56	80	40
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46	77	26	78	12	78	58	79	44	80	30	81	16	82	2	82	48	83	34	84	20
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48	80	48	81	36	82	24	83	2	84	0	84	48	85	36	86	24	87	12	88	0
49	82	29	83	18	84	7	84	56	85	45	86	34	87	23	88	12	89	1	89	50
50	84	10	85	0	85	50	86	40	87	30	88	20	89	10	90	0	90	50	91	40
51	85	51	86	42	87	33	88	24	89	15	90	6	90	57	91	48	92	39	93	30
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54	90	54	91	48	92	42	93	36	94	30	95	24	96	18	97	12	98	6	99	0
55	92	35	93	30	94	25	95	20	96	15	97	10	98	5	99	0	99	55	100	50
56	94	16	95	12	96	8	97	4	98	0	98	56	99	52	100	48	101	44	102	40
57	95	57	96	54	97	51	98	48	99	45	100	42	101	39	102	36	103	33	04	30
58	97	38	98	36	99	34	100	32	101	30	102	28	103	26	104	24	105	22	106	20
59	99	19	100	18	101	17	102	16	103	15	104	14	105	13	106	12	107	11	108	10
60	101	0	102	0	103	0	104	0	05	0	106	0	107	0	108	0	109	0	110	0
	101		102		103		104		105		106		107		108		109		110	

SEXAGENARY TABLES.

	111		112		113		114		115		116		117		118		119		120	
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4	7	24	7	28	7	32	7	36	7	40	7	44	7	48	7	52	7	56	8	0
5	9	15	9	20	9	25	9	30	9	35	9	40	9	45	9	50	9	55	10	0
6	11	6	11	12	11	18	11	24	11	30	11	36	11	42	11	48	11	54	12	0
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SEXAGENARY TABLES.

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SEXAGENARY TABLES.

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SEXAGENARY TABLES.

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38	76 38	77 16	77 54	78 32	79 10	79 48	80 26	81 4	81 42	82 20
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42	84 42	85 24	86 6	86 48	87 30	88 12	88 54	89 36	90 18	92 0
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46	91 46	93 32	94 18	95 4	95 0	96 36	97 22	98 8	98 54	99 40
47	94 47	95 34	96 21	97 8	97 55	98 42	99 29	100 16	101 3	101 50
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53	106 53	107 46	108 39	109 32	110 25	111 18	112 11	113 4	113 57	114 50
54	108 54	109 48	110 42	111 36	112 30	113 24	114 18	115 12	116 6	117 0
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58	116 58	117 56	118 54	119 52	120 50	121 48	122 46	123 44	124 42	125 40
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SEXAGENARY TABLES.

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	131		132		133		134		135		136		137		138		139		140	

SEXAGENARY TABLES.

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34	74 14	74 48	75 22	75 56	76 30	77 4	77 38	78 12	78 46	79 20
35	76 25	77 0	77 35	78 10	78 45	79 20	79 55	80 30	81 5	81 40
36	78 36	79 12	79 48	80 24	81 0	81 36	82 12	82 48	83 24	84 0
37	80 47	81 24	82 1	82 38	83 15	83 52	84 29	85 6	85 43	86 20
38	82 58	83 36	84 14	84 52	85 30	86 8	86 46	87 24	88 2	88 40
39	85 9	85 48	86 27	87 6	87 45	88 24	89 3	89 42	90 21	91 0
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41	89 31	90 12	90 53	91 34	92 15	92 56	93 37	94 18	94 59	95 40
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SEXAGENARY TABLES.

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29	68	9	68	38	69	7	69	36	70	5	70	34	71	3	71	32	72	1	72	30
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SEXAGENARY TABLES.

	141	142	143	144	145	146	147	148	149	150
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34	79 54	80 28	81 2	81 36	82 10	82 44	83 18	83 52	84 26	85 0
35	82 15	82 50	83 25	84 0	84 35	85 10	85 45	86 20	86 55	87 30
36	84 36	85 12	85 48	86 24	87 0	87 36	88 12	88 48	89 24	90 0
37	86 57	87 34	88 11	88 48	89 25	90 2	90 39	91 16	91 53	92 30
38	89 18	89 56	90 34	91 12	91 50	92 28	93 6	93 44	94 22	95 0
39	91 39	92 18	92 57	93 36	94 15	94 54	95 33	96 12	96 51	97 30
40	94 0	94 40	95 20	96 0	96 40	97 20	98 0	98 40	99 20	100 0
41	96 21	97 2	97 43	98 24	99 5	99 46	100 27	101 8	101 49	102 30
42	98 42	99 24	100 6	100 48	101 30	102 12	102 54	103 36	104 18	105 0
43	101 3	101 46	102 29	103 12	103 55	104 38	105 21	106 4	106 47	107 30
44	103 24	104 8	104 52	105 36	106 20	107 4	107 48	108 32	109 16	110 0
45	105 45	106 30	107 15	108 0	108 45	109 30	110 15	111 0	111 45	112 30
46	108 6	108 52	109 38	110 24	111 10	111 56	112 42	113 28	114 14	115 0
47	110 27	111 14	112 1	112 48	112 35	114 22	115 9	115 56	116 45	117 30
48	112 48	113 36	114 24	115 12	116 0	116 48	117 36	118 24	118 12	120 0
49	115 9	115 58	116 47	117 36	118 25	119 14	120 3	120 52	121 41	122 30
50	117 30	118 20	119 10	120 0	120 30	121 40	122 30	123 20	124 10	125 0
51	119 51	120 42	121 33	122 24	123 15	124 6	124 57	125 48	126 39	127 30
52	122 12	123 4	123 56	124 48	125 40	126 32	127 24	128 16	129 8	130 0
53	124 33	125 26	126 19	127 12	128 5	128 58	129 51	130 44	131 37	132 30
54	126 54	127 48	128 42	129 36	130 30	131 24	132 18	133 12	134 6	135 0
55	129 15	130 10	131 5	132 0	132 55	133 50	134 45	135 40	136 35	137 30
56	131 36	132 32	133 28	134 24	135 20	136 16	137 12	138 8	139 4	140 0
57	133 57	134 54	135 51	136 48	137 45	138 42	139 39	140 36	141 33	142 30
58	136 18	137 16	138 14	139 12	140 10	141 8	142 6	143 4	144 2	145 0
59	138 39	139 38	140 37	141 36	142 35	143 34	144 33	145 32	146 31	147 30
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SEXAGENARY TABLES.

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6	15	6	15	12	15	18	15	24	15	30	15	36	15	42	15	48	15	54	16
7	17	37	17	44	17	51	17	58	18	5	18	12	18	19	18	26	18	33	18
8	20	9	20	16	20	24	20	32	20	40	20	48	20	56	21	4	21	12	21
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10	25	10	25	20	25	30	25	40	25	50	26	0	26	10	26	20	26	30	26
11	27	41	27	52	28	3	28	14	28	25	28	36	28	47	28	58	29	9	29
12	30	12	30	24	30	36	30	48	31	0	31	12	31	24	31	36	31	48	32
13	32	43	32	56	33	9	33	22	33	35	33	48	34	1	34	14	34	27	34
14	35	14	35	28	35	42	35	56	36	10	36	24	36	38	36	52	37	6	37
15	37	45	37	0	38	15	38	30	38	45	39	0	39	15	39	30	39	45	40
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18	45	18	45	36	45	54	46	12	46	30	46	48	47	6	47	24	47	42	48
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22	55	22	55	44	56	6	56	28	56	50	57	12	57	34	57	56	58	18	58
23	57	53	58	16	58	39	59	2	59	25	59	48	60	11	60	34	60	57	61
24	60	24	60	48	61	12	61	36	62	0	62	24	62	48	63	12	63	36	64
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26	65	26	65	52	66	18	66	44	67	10	67	36	68	2	68	28	68	54	69
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28	70	28	70	56	71	24	71	52	72	20	72	48	73	16	73	44	74	12	74
29	72	59	73	28	73	57	74	26	74	55	75	24	75	53	76	22	76	51	77
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	151		152		153		154		155		156		157		158		159		16

SEXAGENARY TABLES.

	151	152	153	154	155	156	157	158	159	160
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33	83 3	83 36	84 9	84 42	85 15	85 48	86 21	86 54	87 27	88 0
34	85 34	86 8	86 42	87 16	87 50	88 24	88 58	89 32	90 6	90 40
35	88 5	88 40	89 15	89 50	90 25	91 0	91 35	92 10	92 45	93 20
36	90 36	91 12	91 48	92 24	93 0	93 36	94 12	94 48	95 24	96 0
37	93 7	93 44	94 21	94 58	95 35	96 12	96 49	97 26	98 3	98 40
38	95 38	96 16	96 54	97 32	98 10	98 48	99 26	100 4	100 42	101 20
39	98 9	98 48	99 27	100 6	100 45	101 24	102 3	102 42	103 21	104 0
40	100 40	101 20	102 0	102 40	103 20	104 0	104 40	105 20	106 0	106 40
41	103 11	103 52	104 33	105 14	105 55	106 36	107 17	107 58	108 39	109 20
42	105 42	106 24	107 6	108 48	108 30	109 12	109 54	110 36	111 18	112 0
43	108 13	108 56	109 39	110 22	111 5	111 48	112 31	113 14	113 57	114 40
44	110 44	111 28	112 12	112 56	113 40	114 24	115 8	115 52	116 36	117 20
45	113 15	114 0	114 45	115 30	116 15	117 0	117 45	118 40	119 15	120 0
46	115 46	116 32	117 18	117 4	118 50	119 46	120 22	121 8	122 54	122 40
47	118 17	119 4	119 51	120 38	121 25	122 12	123 59	124 46	125 33	125 20
48	120 48	121 36	122 24	123 12	124 0	124 48	125 36	126 24	127 12	128 0
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50	125 50	126 40	127 30	128 20	129 10	130 0	130 50	131 40	132 30	133 20
51	128 21	129 12	130 3	130 54	131 45	132 36	133 27	134 18	135 9	136 0
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54	135 54	136 48	137 42	138 36	139 30	140 24	141 18	142 22	143 6	144 0
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56	140 56	141 52	142 48	143 44	144 40	145 36	146 32	147 28	148 24	149 20
57	143 27	144 24	145 21	146 18	147 15	148 12	149 9	150 6	151 3	152 0
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59	148 20	149 28	150 27	151 26	152 25	153 24	154 23	155 22	156 21	157 20
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	151	152	153	154	155	156	157	158	159	160

SEXAGENARY TABLES.

	161		162		163		164		165		166		167		168		169		170	
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12	32	12	32	24	32	36	32	48	33	0	33	12	33	24	33	36	33	48	34	0
13	34	53	35	6	35	19	35	32	35	45	35	58	36	11	36	24	36	37	36	50
14	37	34	37	48	38	2	38	16	38	30	38	44	38	58	39	12	39	26	39	40
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16	42	56	43	12	43	28	43	44	44	4	44	16	44	32	44	48	45	4	45	20
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18	48	18	48	36	48	54	49	12	49	30	49	48	50	6	50	24	50	42	51	0
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26	69	46	70	12	70	38	71	4	71	30	71	56	72	22	72	48	73	14	73	40
27	72	27	72	54	73	21	73	48	74	15	74	42	75	9	75	36	76	3	76	30
28	75	8	75	36	76	4	76	32	77	0	77	28	77	56	78	24	78	52	79	20
29	77	49	78	18	78	47	79	16	79	45	80	14	80	43	81	12	81	41	82	10
30	80	30	81	0	81	30	82	0	82	30	83	0	83	30	84	0	84	30	85	0
	161		162		163		164		165		166		167		168		169		170	

SEXAGENARY TABLES.

	161	162	163	164	165	166	167	168	169	170
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33	88 33	89 6	89 39	90 12	90 45	91 18	91 51	92 24	92 57	93 30
34	91 14	91 48	92 22	92 56	93 30	94 4	94 38	95 12	95 46	96 20
35	93 55	94 30	95 5	95 40	96 15	96 50	97 25	98 0	98 35	99 10
36	96 36	97 12	97 48	98 24	99 0	99 36	100 12	100 48	101 24	102 0
37	99 17	99 54	100 31	101 8	101 45	102 22	102 59	103 36	104 13	104 50
38	101 58	102 36	103 14	103 52	104 30	105 8	105 46	106 24	107 2	107 40
39	104 39	105 18	105 57	106 36	107 15	107 54	108 33	109 12	109 51	110 30
40	107 20	108 0	108 40	109 20	110 0	110 40	111 20	112 0	112 40	113 20
41	110 1	110 42	111 23	112 4	112 45	113 26	114 7	114 48	115 29	116 10
42	112 42	113 24	114 6	114 48	115 30	116 12	116 54	117 36	118 18	119 0
43	115 23	116 6	116 49	117 32	118 15	118 58	119 41	120 24	121 7	121 50
44	118 4	118 48	119 32	120 16	121 0	121 44	122 28	123 12	123 56	124 40
45	120 45	121 30	122 15	123 0	123 45	124 30	125 15	126 0	126 45	127 30
46	123 26	124 12	124 58	125 44	126 30	127 16	128 2	128 48	129 34	130 20
47	126 7	126 54	127 41	128 28	126 15	130 2	130 49	131 36	132 23	133 10
48	128 48	129 36	130 24	131 12	132 0	132 48	133 36	134 24	135 12	136 0
49	131 29	132 18	133 7	133 56	134 45	135 34	136 23	137 12	138 1	138 50
50	134 10	135 0	135 50	136 40	137 30	138 20	139 10	140 0	140 50	141 40
51	136 51	137 42	138 33	139 24	140 15	141 6	141 57	142 48	143 39	144 30
52	139 32	140 24	141 16	142 8	143 0	143 52	144 44	145 36	146 28	147 20
53	142 13	143 6	143 59	144 52	145 45	146 38	147 31	148 24	149 17	150 10
54	144 54	145 48	146 42	147 36	148 30	149 24	150 18	151 12	152 6	153 0
55	147 35	148 30	149 25	150 20	151 15	152 10	153 5	154 0	154 55	155 50
56	150 16	151 12	152 8	153 4	154 0	154 56	155 52	156 48	157 44	158 40
57	152 57	153 54	154 51	155 48	156 45	157 42	158 39	159 36	160 33	161 30
58	155 38	156 36	157 34	158 32	159 30	160 28	161 28	162 24	163 22	164 20
59	158 19	159 18	160 17	161 16	162 15	163 14	164 13	165 12	166 11	167 10
60	161 0	162 0	163 0	164 0	165 0	166 0	167 0	168 0	169 0	170 0
	161	162	163	164	165	166	167	168	169	170

SEXAGENARY TABLES.

	171		172		173		174		175		176		177		178		179		180	
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8	22	48	22	56	23	4	23	12	23	20	23	28	23	36	23	44	23	52	24	0
9	25	39	25	48	25	57	26	6	26	15	26	24	26	33	26	42	26	51	27	0
10	28	30	28	40	28	50	29	0	29	10	29	20	29	30	29	40	29	50	30	0
11	31	21	31	32	31	43	31	54	32	5	32	16	32	27	32	38	32	49	33	0
12	34	12	34	24	34	46	34	48	35	0	35	12	35	24	35	36	35	48	36	0
13	37	3	37	16	37	29	37	42	37	55	38	8	38	21	38	34	38	47	39	0
14	39	54	40	8	40	22	40	36	40	50	41	4	41	18	41	32	41	46	42	0
15	42	45	43	0	43	15	43	30	43	45	44	0	44	15	44	30	44	45	45	0
16	45	36	45	52	46	8	46	24	46	40	46	56	47	12	47	28	47	44	48	0
17	48	27	48	44	49	1	49	18	49	35	49	52	50	9	50	26	50	43	51	0
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19	54	9	54	28	54	47	55	6	55	25	55	44	56	3	56	22	56	41	57	0
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21	59	51	60	12	60	33	60	54	61	15	61	36	61	57	62	18	62	39	63	0
22	62	42	63	4	63	26	63	48	64	10	64	32	64	54	65	16	65	38	66	0
23	65	33	65	56	66	19	66	42	67	5	67	28	67	51	68	14	68	37	69	0
24	68	24	68	48	69	12	69	36	70	0	70	24	70	48	71	12	71	36	72	0
25	71	16	71	40	72	5	72	30	72	55	73	20	73	45	74	10	74	35	75	0
26	74	5	74	32	74	58	75	24	75	50	76	16	76	42	77	8	77	34	78	0
27	76	57	77	24	77	51	78	18	78	54	79	12	79	39	80	6	80	33	81	0
28	79	48	80	16	80	44	81	12	81	40	82	8	82	36	83	4	83	32	84	0
29	82	39	83	8	83	37	84	6	84	35	85	4	85	33	86	2	86	31	87	0
30	85	30	86	0	86	30	87	0	87	30	88	0	88	30	89	0	89	30	90	0
	171		172		173		174		175		176		177		178		179		180	

SEXAGENARY TABLES.

	171	172	173	174	175	176	177	178	179	180
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33	94 3	94 36	95 9	95 42	96 15	96 48	97 21	97 54	98 27	99 0
34	96 54	97 28	98 2	98 36	99 10	99 44	100 18	100 52	101 26	102 6
35	99 45	100 20	100 55	101 30	102 5	102 40	103 15	103 50	105 25	105 0
36	102 36	103 12	103 48	104 24	105 0	105 36	106 12	106 48	107 24	108 0
37	105 27	106 4	106 41	107 18	107 55	108 32	109 9	109 46	110 23	111 0
38	108 18	108 56	109 34	110 12	110 50	111 28	112 6	112 44	113 22	114 0
39	111 9	111 48	112 27	113 6	113 45	114 24	115 3	115 42	116 21	117 0
40	114 0	114 40	115 20	116 0	116 40	117 20	118 0	118 40	119 20	120 0
41	116 51	117 32	118 13	118 54	119 35	120 16	120 57	121 38	122 19	123 0
42	119 42	120 24	121 6	121 48	122 30	123 12	123 54	124 36	125 18	126 0
43	122 33	123 16	123 59	124 42	125 25	126 8	126 51	127 34	128 17	129 0
44	125 24	126 8	126 52	127 36	128 20	129 4	129 48	130 32	131 16	132 0
45	128 15	129 0	129 45	130 30	131 15	132 0	132 45	133 30	134 15	135 0
46	131 6	131 52	132 38	133 24	134 10	134 56	135 42	136 28	137 14	138 0
47	133 57	134 44	135 31	136 18	137 5	137 52	138 39	139 26	140 13	141 0
48	136 48	137 36	138 24	139 12	140 0	140 48	141 36	142 24	143 12	144 0
49	139 39	140 28	141 17	142 6	142 55	143 44	144 33	145 22	146 11	147 0
50	142 30	143 20	144 10	145 0	145 50	146 40	147 30	148 20	149 10	150 0
51	145 21	146 12	147 3	147 54	148 45	149 36	150 27	151 18	152 9	153 0
52	148 12	149 4	149 56	150 48	151 40	152 32	153 24	154 16	155 8	156 0
53	151 3	151 56	152 49	153 42	154 35	155 28	156 21	157 14	158 7	159 0
54	153 54	154 48	155 42	156 36	157 30	158 24	159 18	160 12	161 6	162 0
55	156 45	157 40	158 35	159 30	160 25	161 20	162 15	163 10	164 5	165 0
56	159 36	160 32	161 28	162 24	163 20	164 16	165 12	166 8	167 4	168 0
57	162 27	163 24	164 21	165 18	166 15	167 12	168 9	169 6	170 3	171 0
58	165 18	166 16	167 14	168 12	169 10	170 8	171 6	172 4	173 2	174 0
59	168 9	169 8	170 7	179 6	172 5	173 4	174 3	175 2	176 1	177 0
60	171 0	172 0	173 0	174 0	175 0	176 0	177 0	178 0	179 0	180 0
	171	172	173	174	175	176	177	178	179	180

A TABLE
OF THE
SEMI-DIURNAL AND NOCTURNAL ARCS,

Shewing the time of the Sun-ſetting, when he is in the Northern ſigns, and time of his Riſing, when in Southern ſigns.

Pole. Sun's Place.	42 h. m.	43 h. m.	44 h. m.	45 h. m.	46 h. m.	47 h. m.	48 h. m.	49 h. m.	50 h. m.	Pole. Sun's Place.
♈ ♎	6 0	6 0	6 0	6 0	6 0	6 0	6 0	6 0	6 0	30
3	6 4	6 4	6 5	6 5	6 5	6 5	6 5	6 6	6 6	27
6	6 9	6 9	6 9	6 10	6 10	6 10	6 11	6 11	6 11	24
9	6 13	6 13	6 14	6 14	6 15	6 15	6 16	6 16	6 17	21
12	6 17	6 18	6 18	6 19	6 20	6 20	6 21	6 22	6 23	18
15	6 21	6 22	6 23	6 24	6 25	6 26	6 27	6 27	6 28	15
18	6 26	6 27	6 27	6 29	6 30	6 31	6 32	6 33	6 34	12
21	6 30	6 31	6 32	6 33	6 34	6 36	6 37	6 38	6 40	9
24	6 34	6 35	6 36	6 38	6 39	6 41	6 42	6 44	6 45	6
27	6 38	6 40	6 41	6 43	6 44	6 46	6 47	6 49	6 51	3
♉ ♏	6 42	6 44	6 45	6 47	6 49	6 50	6 52	6 54	6 56	♓ ♍
3	6 46	6 48	6 50	6 51	6 53	6 55	6 57	6 59	7 1	27
6	6 50	6 52	6 54	6 56	6 57	7 0	7 2	7 4	7 7	24
9	6 54	6 56	6 58	7 0	7 2	7 5	7 7	7 9	7 12	21
12	6 58	7 0	7 2	7 4	7 7	7 9	7 12	7 14	7 17	18
15	7 1	7 4	7 6	7 8	7 11	7 13	7 17	7 19	7 22	15
18	7 5	7 7	7 10	7 12	7 15	7 18	7 21	7 24	7 27	12
21	7 8	7 11	7 13	7 16	7 19	7 22	7 25	7 28	7 31	9
24	7 11	7 14	7 17	7 20	7 23	7 26	7 29	7 32	7 36	6
27	7 14	7 17	7 20	7 23	7 26	7 29	7 33	7 36	7 40	3
♊ ♐	7 17	7 20	7 23	7 26	7 30	7 33	7 36	7 40	7 44	♒ ♌
3	7 20	7 23	7 26	7 29	7 33	7 36	7 40	7 44	7 48	27
6	7 23	7 26	7 29	7 32	7 36	7 39	7 43	7 47	7 51	24
9	7 25	7 28	7 31	7 35	7 38	7 42	7 46	7 50	7 54	21
12	7 27	7 30	7 33	7 37	7 40	7 44	7 48	7 53	7 57	18
15	7 28	7 32	7 35	7 39	7 42	7 46	7 50	7 55	7 59	15
18	7 30	7 33	7 37	7 40	7 44	7 48	7 52	7 57	7 1	12
21	7 31	7 34	7 38	7 42	7 45	7 49	7 54	7 58	7 3	9
24	7 32	7 35	7 39	7 42	7 46	7 50	7 55	7 59	7 4	6
27	7 32	7 35	7 39	7 43	7 47	7 51	7 56	8 0	7 4	3
30	7 32	7 36	7 39	7 43	7 47	7 51	7 56	8 0	7 5	♑ ♋

A TABLE
OF THE
SEMI-DIURNAL AND NOCTURNAL ARCS,

Shewing the time of the Sun-ſetting, when he is in the Northern ſigns, and time of his Riſing, when in Southern ſigns.

Pole. Sun's Place.	51 h.m.	52 h.m.	53 h.m.	54 h.m.	55 h.m.	56 h.m.	57 h.m.	58 h.m.	59 h.m.	Pole. Sun's Place-
♈ ♎	6 0	6 0	6 0	6 0	6 0	6 0	6 0	6 0	6 0	30
3	6 6	6 6	6 6	6 7	6 7	6 7	6 5	6 8	6 8	27
6	6 12	6 12	6 13	6 13	6 14	6 14	6 15	6 15	6 16	24
9	6 18	6 18	6 19	6 20	6 20	6 21	6 22	6 23	6 24	12
12	6 24	6 24	6 25	6 26	6 27	6 28	6 29	6 31	6 32	18
15	6 29	6 31	6 32	6 33	6 34	6 35	6 37	6 38	6 40	15
18	6 35	6 37	6 38	6 39	6 41	6 42	6 44	6 46	6 40	12
21	6 41	6 43	6 44	6 46	6 48	6 49	6 51	6 53	6 56	9
24	6 47	6 49	6 50	6 52	6 54	6 56	6 59	7 1	7 4	6
27	6 53	6 55	6 57	6 56	7 1	7 3	7 6	7 8	7 12	3
♉ ♏	6 58	7 0	7 3	7 5	7 8	7 10	7 13	7 16	7 19	♓ ♍
3	7 4	7 6	7 9	7 11	7 14	7 17	7 20	7 23	7 27	27
6	7 9	7 12	7 15	7 17	7 21	7 24	8 27	7 31	7 35	24
9	7 15	7 17	7 20	7 24	7 27	7 30	8 33	7 38	7 43	21
12	7 20	7 23	7 26	7 30	7 33	7 37	8 41	7 45	7 50	18
15	7 25	7 28	7 32	7 35	7 39	7 43	8 48	7 52	7 57	15
18	7 30	7 34	7 37	7 41	7 45	7 49	8 54	7 59	8 4	12
21	7 35	7 39	7 42	7 47	7 51	7 56	8 0	8 6	8 11	9
24	7 39	7 43	7 47	7 52	7 56	8 1	8 6	8 12	8 18	6
27	7 44	7 48	7 52	7 57	8 2	8 7	8 12	8 18	8 25	3
♊ ♐	7 48	7 52	7 57	8 2	8 7	8 12	8 18	8 24	8 31	♒ ♌
3	7 52	7 56	8 1	8 6	8 12	8 17	8 23	8 30	8 37	27
6	7 56	8 0	8 5	8 10	8 16	8 22	8 28	8 35	8 43	24
9	7 59	8 4	8 9	8 14	8 20	8 26	8 33	8 40	8 48	21
12	8 2	8 7	8 12	8 17	8 23	8 30	8 37	8 44	8 53	18
15	8 4	8 9	8 15	8 20	8 26	8 33	8 40	8 48	8 57	15
18	8 6	8 11	8 17	8 23	8 29	8 36	8 43	8 51	9 0	12
21	8 8	8 13	8 19	8 25	8 31	8 38	8 45	8 53	9 2	9
24	8 9	8 14	8 20	8 26	8 32	8 39	8 47	8 55	9 4	6
27	8 10	8 15	8 21	8 27	8 33	8 40	8 48	8 56	9 5	3
30	8 10	8 15	8 21	8 27	8 34	8 41	8 48	8 56	9 5	♋ ♑

A TABLE

Shewing the Semidiurnal Arch to every Degree of the Ecliptic, Calculated for the Latitude of 51 Degrees 32 Minutes.

	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓
deg.	h.m.	h.m.	h.m.	h.m.	h.m.	h.m.	h.m.	h.m.	h.m.	h.m.	h.m.	h.m.
0	6 0	6 59	7 51	8 13	7 50	6 59	6 0	5 1	4 10	3 47	4 10	5 1
1	6 2	7 1	7 52	8 13	7 49	6 58	5 58	4 59	4 8	3 47	4 11	5 2
2	6 4	7 3	7 53	8 12	7 47	6 56	5 56	4 57	4 7	3 47	4 12	5 4
3	6 6	7 5	7 54	8 12	7 46	6 54	5 54	4 55	4 5	3 48	4 13	5 6
4	6 8	7 7	7 55	8 11	7 45	6 52	5 52	4 53	4 4	3 48	4 15	5 8
5	6 10	7 9	7 56	8 11	7 43	6 50	5 50	4 52	4 3	3 48	4 16	5 10
6	6 12	7 11	7 57	8 10	7 42	6 48	5 48	4 50	4 2	3 49	4 18	5 12
7	6 14	7 13	7 59	8 10	7 41	6 46	5 46	4 48	4 1	3 49	4 20	5 14
8	6 16	7 15	8 0	8 9	7 40	6 44	5 44	4 46	4 0	3 50	4 21	5 16
9	6 18	7 17	8 1	8 9	7 39	6 42	5 42	4 45	3 59	3 50	4 23	5 18
10	6 20	7 20	8 2	8 8	7 38	6 40	5 40	4 43	3 58	3 51	4 25	5 20
11	6 22	7 23	8 4	8 8	7 37	6 38	5 38	4 41	3 57	3 51	4 27	5 22
12	6 24	7 26	8 4	8 7	7 36	6 36	5 36	4 39	3 56	3 52	4 29	5 24
13	6 26	7 28	8 4	8 7	7 35	6 34	5 34	4 37	3 55	3 53	4 30	5 26
14	6 28	7 30	8 5	8 6	7 33	6 32	5 32	4 36	3 54	3 53	4 32	5 28
15	6 30	7 33	8 6	8 6	7 31	6 30	5 30	4 34	3 54	3 54	4 34	5 30
16	6 32	7 35	8 6	8 5	7 30	6 28	5 28	4 32	3 53	3 54	4 36	5 32
17	6 34	7 36	8 7	8 4	7 28	6 26	5 26	4 30	3 53	3 55	4 37	5 34
18	6 36	7 37	8 7	8 4	7 26	6 24	5 24	4 29	3 52	3 56	4 39	5 36
19	6 38	7 38	8 8	8 3	7 23	6 22	5 22	4 27	3 51	3 57	4 41	5 38
20	6 40	7 39	8 8	8 2	7 20	6 20	5 20	4 25	3 51	3 58	4 43	5 40
21	6 42	7 40	8 9	8 1	7 17	6 18	5 18	4 23	3 50	3 59	4 45	5 42
22	6 44	7 41	8 9	8 0	7 15	6 16	5 16	4 21	3 50	4 0	4 46	5 44
23	6 46	7 42	8 10	7 59	7 13	6 14	5 14	4 20	3 49	4 1	4 48	5 46
24	6 48	7 43	8 10	7 57	7 11	6 12	5 12	4 18	3 49	4 2	4 50	5 48
25	6 50	7 45	8 11	7 56	7 9	6 10	5 10	4 16	3 48	4 3	4 52	5 50
26	6 52	7 46	8 11	7 55	7 7	6 8	5 8	4 15	3 48	4 4	4 53	5 52
27	6 54	7 47	8 12	7 54	7 5	6 6	5 6	4 13	3 48	4 5	4 55	5 54
28	6 56	7 48	8 12	7 53	7 3	6 4	5 4	4 12	3 47	4 7	4 57	5 56
29	6 58	7 49	8 13	7 52	7 1	6 2	5 2	4 11	3 47	4 8	4 59	5 58
30	6 59	7 50	8 13	7 51	6 59	6 0	5 1	4 10	3 47	4 10	5 1	6 0

A TABLE,

Shewing the Semi~~di~~nocturnal Arch to every Degree of the Ecliptic,

Calculated for the Latitude of 51 Degrees 32 Minutes.

	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓
deg.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
0	6 0	5 1	4 9	3 47	4 10	5 1	6 0	6 59	7 50	8 13	7 50	6 59
1	5 58	4 59	4 8	3 47	4 12	5 2	6 2	7 1	7 52	8 13	7 49	6 58
2	5 56	4 57	4 7	3 48	4 13	5 4	6 4	7 3	7 53	8 13	7 48	6 56
3	5 54	4 55	4 6	3 48	4 14	5 6	6 6	7 5	7 55	8 12	7 47	6 54
4	5 52	4 53	4 5	3 49	4 15	5 8	6 8	7 7	7 56	8 12	7 45	6 52
5	5 50	4 51	4 4	3 49	4 17	5 10	6 10	7 8	7 57	8 12	7 44	6 50
6	5 48	4 49	4 3	3 50	4 18	5 12	6 12	7 10	7 58	8 11	7 42	6 48
7	5 46	4 47	4 1	3 50	4 19	5 14	6 14	7 12	7 59	8 11	7 40	6 46
8	5 44	4 45	4 0	3 51	4 20	5 16	6 16	7 14	8 0	8 10	7 39	6 44
9	5 42	4 43	3 59	3 51	4 21	5 18	6 18	7 15	8 1	8 10	7 37	6 42
10	5 40	4 40	3 58	3 52	4 22	5 20	6 20	7 17	8 2	8 9	7 35	6 40
11	5 38	4 37	3 57	3 52	4 23	5 22	6 22	7 19	8 3	8 9	7 33	6 38
12	5 36	4 34	3 56	3 53	4 24	5 24	6 24	7 21	8 4	8 8	7 31	6 36
13	5 34	4 32	3 56	3 53	4 25	5 26	6 26	7 23	8 5	8 7	7 30	6 34
14	5 32	4 30	3 55	3 54	4 27	5 28	6 28	7 24	8 6	8 7	7 28	6 32
15	5 30	4 29	3 54	3 54	4 29	5 30	6 30	7 26	8 6	8 6	7 26	6 30
16	5 28	4 27	3 54	3 55	4 30	5 32	6 32	7 28	8 7	8 6	7 24	6 28
17	5 26	4 25	3 53	3 56	4 32	5 34	6 34	7 30	8 7	8 5	7 23	6 26
18	5 24	4 24	3 53	3 56	4 34	5 36	6 36	7 31	8 8	8 4	7 21	6 24
19	5 22	4 23	3 52	3 57	4 37	5 38	6 38	7 33	8 9	8 3	7 19	6 22
20	5 20	4 22	3 52	3 58	4 40	5 40	6 40	7 35	8 9	8 2	7 17	6 20
21	5 18	4 21	3 51	3 59	4 43	5 42	6 42	7 37	8 10	8 1	7 15	6 18
22	5 16	4 20	3 51	4 0	4 45	5 44	6 44	7 39	8 10	8 0	7 14	6 16
23	5 14	4 19	3 50	4 1	4 47	5 46	6 46	7 40	8 11	7 59	7 12	6 14
24	5 12	4 18	3 50	4 3	4 49	5 48	6 48	7 42	8 11	7 58	7 10	6 12
25	5 10	4 17	3 49	4 4	4 51	5 50	6 50	7 44	8 12	7 57	7 8	6 10
26	5 8	4 15	3 49	4 5	4 53	5 52	6 52	7 45	8 12	7 56	7 7	6 8
27	5 6	4 14	3 48	4 6	4 55	5 54	6 54	7 47	8 12	7 55	7 5	6 6
28	5 4	4 13	3 48	4 7	4 57	5 56	5 56	7 48	8 13	7 53	7 3	6 4
29	5 2	4 11	3 47	4 8	4 59	5 58	6 58	7 49	8 13	7 52	7 1	6 2
30	5 1	4 10	3 47	4 9	5 1	6 0	6 59	7 50	8 13	7 50	6 59	6 0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 44 Degrees.

Pa	0	♋ 10	20	0	♌ 10	20	0	♍ 10	20	30
3	5 9	5 6	4 59	4 50	4 41	4 30	4 22	4 16	4 13	4 10
4	6 55	6 52	6 42	6 30	6 16	6 3	5 59	5 43	5 38	5 34
5	8 42	8 39	8 26	8 11	7 52	7 34	7 19	7 9	7 2	6 58
5	10 32	10 26	10 11	9 52	9 30	9 8	8 49	8 36	8 27	8 21
6	12 24	12 17	11 59	11 36	11 9	10 43	10 20	10 4	8 52	9 45
8	14 19	14 12	13 51	13 22	12 50	12 19	11 52	11 32	11 18	11 9
9	16 17	16 9	15 44	15 11	14 32	13 55	13 24	13 0	12 44	12 33
10	18 18	18 7	17 38	16 58	16 14	15 33	14 56	14 29	14 10	13 58
11	20 23	20 9	19 35	18 53	17 59	17 12	16 30	15 59	15 37	15 23
12	22 31	22 17	21 38	20 45	19 47	18 53	18 6	17 30	17 4	16 48
13	24 45	24 28	23 45	22 46	21 37	20 35	19 42	19 1	18 32	17 13
14	27 5	26 44	25 14	24 44	23 30	22 19	21 19	20 33	20 1	19 39
15	29 32	29 10	28 10	26 49	25 24	24 6	22 59	22 6	21 30	21 4
16	32 7	31 45	30 32	28 59	27 23	25 54	24 38	23 41	22 59	22 32
17	34 46	34 27	33 2	31 16	29 25	27 45	26 20	25 19	24 30	23 59
18	37 32	37 16	35 40	33 38	31 30	20 38	28 0	26 55	26 3	25 26
	30	♊ 20	10	0	♉ 20	10	0	♈ 20	10	0

	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	30
3	4 10	4 12	4 13	4 19	4 26	4 35	4 41	4 48	4 53	4 55
4	5 34	5 35	5 37	5 44	5 53	6 5	6 13	6 22	6 28	6 30
5	6 58	6 58	7 1	7 9	7 20	7 34	7 44	7 56	8 3	8 5
6	8 21	8 21	8 25	8 34	8 47	9 3	9 15	9 28	9 37	9 40
7	9 45	9 44	9 48	9 56	10 13	10 31	10 45	11 0	11 10	11 13
8	11 9	11 7	11 13	11 21	11 39	11 59	12 14	12 31	12 42	12 45
9	12 33	12 31	12 36	12 46	13 4	13 25	13 42	14 1	14 13	14 16
10	13 58	13 55	13 59	14 12	14 29	14 52	15 11	15 30	15 44	15 48
11	15 23	15 19	15 23	15 35	15 51	16 17	16 49	16 59	17 14	17 18
12	16 48	16 43	16 47	16 59	16 19	18 42	18 6	18 28	18 43	18 47
13	18 13	18 7	18 10	18 22	18 45	19 9	19 32	19 56	20 12	20 17
14	19 39	19 31	19 33	19 46	20 12	20 36	20 59	21 24	21 41	21 46
15	21 4	20 55	20 55	21 8	21 34	22 1	22 25	22 51	23 9	23 13
16	22 32	22 19	22 20	22 33	22 55	23 26	23 51	24 17	24 36	24 42
17	23 59	23 44	23 44	23 57	24 19	24 51	25 17	25 44	26 3	26 7
18	25 26	25 9	25 8	25 20	25 43	26 15	26 42	27 10	27 30	27 37
	30	♓ 20	10	0	♒ 20	10	0	♑ 20	10	0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 47 Degrees.

Pa	0	♋ 10	20	0	♌ 10	20	0	♍ 10	20	0
3	5 33	5 31	5 23	5 10	5 0	4 49	4 38	4 33	4 26	4 24
4	7 30	7 26	7 16	6 58	6 43	6 27	6 13	6 5	5 56	5 59
5	9 29	9 24	9 10	8 47	8 27	8 6	7 48	7 35	7 25	7 21
6	11 29	11 24	11 6	10 40	10 10	9 46	9 23	9 7	8 55	8 49
7	13 34	13 28	13 5	12 34	12 0	11 28	11 0	10 39	10 25	10 18
8	15 44	15 35	15 7	14 30	13 50	13 11	12 38	12 10	11 56	11 46
9	17 58	17 46	17 13	16 49	15 41	14 56	14 17	13 45	13 27	13 16
10	20 15	20 3	19 20	18 31	17 34	16 40	15 57	15 19	14 59	14 45
11	22 40	22 26	21 37	20 36	19 30	18 30	17 38	16 54	16 21	16 15
12	25 10	24 54	24 0	22 46	21 30	20 20	19 20	18 29	18 4	17 45
13	20 53	27 30	26 28	25 1	23 33	22 13	21 4	20 7	19 36	19 16
14	30 45	30 18	29 3	27 20	25 39	24 8	22 51	21 50	21 10	20 47
15	33 50	33 19	31 46	29 47	27 50	25 6	24 39	23 36	22 36	22 18
16	37 20	36 37	34 43	32 20	30 6	28 6	26 26	25 18	24 17	23 50
17	41 17	40 20	37 58	35 9	32 28	30 10	28 20	27 0	25 57	25 23
18	46 6	44 46	41 37	38 5	34 57	32 21	30 31	29 3	27 39	26 50
	30	♊ 20	10	0	♉ 20	10	0	♈ 20	10	0
	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	30
3	4 24	4 25	4 28	4 34	4 41	4 50	4 49	5 9	5 16	5 18
4	5 53	5 54	5 57	6 4	6 13	6 26	6 38	6 49	6 57	6 59
5	7 21	7 21	7 25	7 34	7 45	8 0	8 15	8 29	8 39	8 41
6	8 49	8 49	8 50	9 4	9 17	9 34	9 51	10 8	10 20	10 23
7	10 18	10 17	10 20	10 34	10 48	11 7	11 27	11 45	11 58	12 1
8	11 46	11 44	11 50	12 3	12 19	12 50	13 2	13 20	13 36	13 39
9	13 16	13 13	13 19	13 30	13 40	14 10	14 36	14 58	15 13	15 17
10	14 45	14 41	14 46	15 0	15 19	15 43	16 9	16 33	16 50	16 54
11	16 15	16 9	16 14	16 28	16 9	17 14	17 40	18 7	18 25	18 29
12	17 45	17 37	17 42	17 57	18 18	18 45	19 14	19 41	20 0	20 5
13	19 16	19 7	19 11	19 25	19 47	20 15	20 45	21 14	21 33	21 40
14	20 47	20 36	20 38	20 53	21 15	21 45	22 16	22 47	23 7	23 13
15	22 18	22 4	22 5	22 21	22 44	23 15	23 47	24 19	24 30	24 37
16	23 50	23 34	23 34	23 49	24 10	24 44	25 18	25 50	26 10	26 19
17	25 23	25 4	25 0	25 17	25 41	26 13	26 48	27 21	27 24	27 50
18	26 57	26 36	26 30	26 45	27 40	27 40	28 18	28 50	29 16	29 24
	30	♓ 20	10	0	♒ 20	10	0	♑ 20	10	0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 50 Degrees.

Pa	0	♋ 10	20	0	♌ 10	20	0	♍ 10	20	30
3	6 9	6 5	5 54	5 40	5 25	5 13	4 59	4 50	4 40	4 40
4	8 18	8 15	8 1	7 38	7 18	6 58	6 39	6 25	6 18	6 14
5	10 33	10 27	10 9	9 39	9 10	8 46	8 21	8 0	7 43	7 48
6	12 51	12 43	12 18	11 40	11 7	10 31	10 4	9 40	9 28	9 20
7	15 15	15 5	14 33	13 49	13 5	12 20	11 49	11 20	11 3	10 56
8	17 46	17 33	16 54	16 0	15 6	14 15	13 35	13 0	12 39	12 30
9	20 44	20 8	19 20	18 15	17 11	16 10	15 20	14 43	13 16	14 5
10	23 10	22 49	21 50	20 34	19 17	18 6	17 10	16 25	15 54	15 40
11	26 6	25 41	24 30	22 59	21 27	20 6	19 1	18 8	17 33	17 16
12	29 20	28 50	27 24	25 33	23 40	22 10	20 55	19 51	19 14	18 52
13	32 18	32 18	30 28	28 16	26 5	24 17	22 49	21 37	20 56	20 29
14	37 5	26 9	33 51	31 9	28 34	26 26	24 46	23 28	22 38	22 7
15	42 5	40 45	37 38	34 13	31 10	28 43	26 46	25 18	24 20	23 45
16	49 17	46 40	43 50	37 37	33 55	31 3	28 50	27 10	26 8	25 24
17			47 58	41 28	36 50	33 30	30 57	29 3	27 53	27 3
18				46 0	40 5	36 4	33 7	31 1	29 36	28 44
	30	♊ 20	10	0	♉ 20	10	0	♈ 20	20	0

Pa	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	30
3	4 40	4 41	4 44	4 51	5 4	5 13	5 25	5 36	5 44	5 46
4	6 14	6 15	6 18	6 27	6 41	6 54	7 10	7 24	7 34	7 37
5	7 48	7 48	7 50	8 3	8 19	8 35	8 54	9 11	9 23	9 27
6	9 20	9 20	9 26	9 38	9 57	10 38	10 38	10 58	11 10	11 17
7	10 56	10 58	11 0	11 13	11 34	11 55	12 20	12 40	12 58	13 4
8	12 30	12 28	12 30	12 48	13 10	13 34	14 1	14 26	14 44	14 51
9	14 5	14 0	14 6	14 20	14 46	15 10	15 41	16 8	16 27	16 35
10	15 40	15 36	15 40	15 56	16 21	16 49	17 21	17 50	18 10	18 18
11	17 16	17 10	17 14	17 30	17 56	18 26	18 59	19 30	19 50	20 1
12	18 52	18 44	18 47	19 3	19 31	20 0	20 38	21 10	21 33	21 40
13	20 29	20 18	20 16	20 37	21 5	21 38	22 15	22 49	23 13	23 23
14	22 7	21 53	21 54	22 10	22 39	23 13	23 50	24 27	24 53	25 3
15	23 45	23 28	23 28	23 44	24 13	24 48	25 28	25 5	26 31	26 41
16	25 24	25 4	25 0	25 17	25 47	26 23	27 4	27 40	28 9	28 20
17	27 3	26 40	26 36	26 51	27 21	27 57	28 40	29 19	29 46	29 57
18	28 44	28 17	28 10	28 24	28 54	29 31	30 15	30 28	31 23	31 34
	30	♓ 20	10	0	♒ 20	10	0	♑ 20	10	0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 51 Degrees.

Pa	0	♋ 10	20	0	♌ 10	20	0	♍ 10	20	30
3	6 20	6 19	6 7	5 51	5 35	5 19	5 6	4 56	4 48	4 46
4	8 40	8 33	8 16	7 53	7 30	7 8	6 49	6 35	6 26	6 20
5	11 0	10 51	10 29	9 58	9 28	8 59	8 34	8 15	8 4	7 58
6	13 26	13 14	12 46	12 6	11 28	10 51	10 20	9 57	9 40	9 34
7	15 59	15 44	15 8	14 19	10 31	12 45	12 8	11 40	11 21	11 10
8	18 39	18 21	17 36	16 37	15 37	14 41	13 57	13 21	12 59	12 47
9	21 18	21 6	20 11	18 59	17 46	16 40	15 47	15 7	14 39	14 24
10	24 28	24 1	22 53	21 25	19 59	18 41	17 39	16 50	16 19	16 1
11	27 44	27 0	25 46	23 59	22 17	20 45	19 33	18 38	18 1	17 39
12	31 23	30 39	28 54	26 43	24 41	22 54	21 30	20 27	19 44	19 18
13	35 30	34 35	32 20	29 38	27 11	25 6	23 29	22 16	21 27	20 57
14	40 36	29 13	36 8	32 45	29 48	27 20	25 31	24 8	23 11	22 37
15	47 58	45 23	40 38	36 10	32 30	29 44	27 36	26 0	24 57	24 17
16			46 28	40 4	36 35	32 10	29 45	27 57	26 44	25 59
17			50 0	43 44	38 51	34 48	31 58	29 55	28 35	27 41
18				50 55	42 28	37 34	44 16	31 57	30 23	29 25
	30	Ⅱ 20	10	0	♉ 20	10	0	♈ 20	10	0

	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	30
3	4 46	4 47	4 51	4 58	5 8	5 20	5 33	5 47	5 56	5 58
4	6 20	6 20	6 26	6 36	6 48	7 5	7 20	7 39	7 50	7 53
5	7 58	7 58	8 3	8 14	8 29	8 48	9 9	9 29	9 40	9 45
6	9 34	9 33	9 39	9 51	10 10	10 35	10 56	11 18	11 13	11 37
7	11 10	11 8	11 14	11 28	11 48	12 10	12 41	13 5	13 20	13 26
8	12 47	12 44	12 50	13 5	13 26	13 53	14 25	14 51	15 10	15 15
9	14 24	14 20	14 26	14 41	15 4	15 33	16 7	16 36	16 56	17 1
10	16 1	15 55	16 1	16 17	16 40	17 13	17 49	18 20	18 40	18 48
11	17 39	17 31	17 36	17 53	18 20	18 50	19 30	20 3	20 26	20 30
12	19 18	19 8	19 10	19 28	19 57	20 31	21 10	21 45	22 10	22 17
13	20 57	20 44	20 47	21 4	21 33	22 9	22 50	23 26	23 50	23 59
14	22 37	22 21	22 23	23 39	23 9	23 46	24 29	25 7	25 34	25 40
15	24 17	23 59	23 59	24 15	24 45	25 23	26 7	26 47	27 15	27 23
16	25 59	25 36	25 34	25 50	26 20	26 59	27 45	28 26	28 55	29 4
17	27 41	27 15	27 11	27 26	27 56	28 36	29 23	30 5	30 35	30 44
18	29 25	28 54	28 47	29 1	29 31	30 20	31 0	31 43	32 14	32 24
	30	♓ 20	10	0	♒ 10	10	0	♑ 10	10	0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 52 Degrees.

Pa	0	♋ 10	20	0	♌ 10	20	0	♍ 10	20	30
3	6 40	6 36	6 22	6 5	5 45	6 27	5 16	5 2	4 56	4 55
4	9 1	8 56	8 36	8 10	7 44	7 19	7 0	6 44	6 35	6 39
5	11 29	11 21	10 54	10 20	9 45	9 13	8 48	8 27	8 15	8 8
6	14 4	13 52	13 18	12 35	11 50	11 9	10 36	10 11	9 55	9 46
7	16 46	16 31	15 48	14 53	13 57	13 7	12 27	11 56	11 36	11 25
8	19 37	19 19	18 25	17 17	16 9	15 8	14 20	13 42	13 17	13 5
9	22 41	22 18	21 10	19 47	18 25	17 10	16 14	15 29	14 49	14 45
10	26 0	25 28	24 6	22 23	20 44	19 17	18 9	17 17	16 43	16 25
11	29 41	28 59	27 16	25 8	23 9	21 27	20 7	19 7	18 28	18 5
12	33 54	32 59	30 43	28 5	25 40	23 40	22 9	21 0	20 13	19 45
13	39 2	37 40	34 35	31 16	28 21	26 1	24 13	22 54	21 59	21 26
14	46 30	43 54	39 0	34 45	31 11	28 24	26 19	24 48	23 46	23 8
15		46 50	45 4	38 40	34 13	30 55	28 30	26 45	25 35	24 50
16				43 23	37 31	33 30	30 45	28 45	27 25	26 36
17				49 40	41 11	36 21	33 5	30 47	29 18	28 21
18					45 26	39 20	35 30	32 55	31 20	30 8
	38	♊ 20	10	9	♉ 20	10	0	♈ 20	10	0

	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	0
3	4 53	4 54	4 58	5 5	5 17	5 29	5 45	5 58	6 7	6 10
4	6 30	6 31	6 36	6 45	7 0	7 16	7 36	7 53	8 5	8 9
5	8 8	8 8	8 13	8 24	8 43	9 2	9 26	9 46	10 0	10 6
6	9 49	9 46	9 50	10 5	10 25	10 47	11 25	11 38	11 55	12 0
7	11 25	11 24	11 30	11 44	12 7	12 31	13 0	13 28	13 46	13 55
8	13 4	13 0	13 8	13 23	13 48	14 15	14 49	15 18	15 37	15 46
9	14 43	14 39	14 45	15 0	15 28	15 57	16 34	17 5	17 26	17 35
10	16 23	16 17	16 23	16 49	17 7	17 39	18 18	18 50	19 15	19 25
11	18 5	17 55	18 0	18 18	18 46	19 20	20 0	20 36	21 2	21 10
12	19 44	19 34	19 37	19 55	20 25	20 1	21 44	22 19	22 48	22 59
13	21 25	21 31	21 15	21 33	22 4	22 41	23 26	24 5	24 30	24 45
14	23 28	22 50	22 53	23 40	23 40	24 21	25 7	25 48	26 16	26 28
15	24 50	24 30	24 31	24 49	25 20	26 0	26 48	27 30	27 50	28 10
16	26 36	26 10	26 9	26 25	26 57	27 39	28 28	29 13	28 40	29 55
17	28 21	27 54	27 49	28 0	28 35	29 17	30 8	30 53	31 25	31 37
18	30 0	29 35	29 27	29 41	30 13	30 55	31 48	32 30	33 5	33 20
	30	♓ 20	10	0	♒ 20	10	0	♑ 20	10	0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 53 Degrees.

Pa	0	♋ 10	20	0	♌ 10	20	0	♍ 10	20	30
3	7 6	6 53	6 38	6 17	5 55	5 36	52 0	5 9	5 3	4 59
4	9 35	9 29	8 58	8 29	7 58	7 31	7 11	6 54	6 46	6 39
5	12 11	11 50	11 23	10 45	10 4	9 28	9 0	8 40	8 28	8 20
6	14 55	14 34	13 56	13 6	12 13	11 29	10 54	10 26	10 10	10 0
7	17 49	17 24	16 35	15 30	14 26	13 20	12 48	12 14	11 52	11 41
8	20 56	20 24	19 24	18 4	16 44	15 38	14 45	14 4	13 38	13 20
9	24 18	23 39	22 23	20 43	19 6	17 46	16 43	15 54	15 22	15 4
10	28 0	27 13	25 38	23 30	21 23	19 57	18 40	17 45	17 9	16 46
11	32 17	31 15	29 10	26 27	24 7	22 13	20 45	19 35	18 56	18 29
12	37 30	36 1	32 39	29 40	26 49	24 34	22 51	21 34	20 44	20 13
13	45 3	42 18	47 36	33 13	29 41	27 0	25 0	23 34	22 32	21 57
14			43 37	37 14	32 46	29 33	27 10	25 34	24 24	23 43
15			57 31	42 0	26 7	32 15	29 29	27 34	26 17	25 28
16				48 23	39 51	35 4	31 50	29 38	28 11	27 16
17					44 10	38 6	34 21	31 46	30 7	29 4
18					49 37	41 25	36 56	33 58	32 6	30 54
	30	♊ 20	10	0	♉ 20	10	0	♈ 20	10	0

	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	30
3	4 59	4 59	5 5	5 13	5 26	5 41	5 55	6 10	6 21	6 26
4	6 39	6 39	6 46	6 55	7 10	7 31	7 50	8 8	S 20	8 28
5	8 20	8 19	8 26	8 37	8 57	9 20	9 43	10 4	10 21	10 28
6	10 0	9 59	10 7	10 20	10 40	11 8	11 30	12 0	12 19	12 27
7	11 41	11 39	11 47	12 0	12 26	12 55	13 25	13 54	14 15	14 24
8	13 20	13 18	13 26	13 43	14 9	14 41	15 15	15 46	16 9	16 19
9	15 4	14 58	15 6	15 24	15 51	16 26	17 0	17 36	18 0	18 11
10	16 46	16 38	16 46	17 4	17 34	18 10	18 49	19 25	19 50	20 3
11	18 29	18 19	18 26	18 44	19 15	19 54	20 35	21 14	21 40	21 54
12	20 13	20 0	20 6	20 24	20 56	21 37	22 20	23 1	23 31	23 43
13	21 57	21 41	21 45	22 4	22 37	23 19	24 4	24 47	25 18	25 31
14	23 40	23 23	23 26	23 44	24 17	25 1	25 48	26 34	27 5	27 18
15	25 28	25 5	25 6	25 24	25 57	26 40	27 31	28 17	28 54	29 5
16	27 16	26 48	26 48	27 4	27 37	28 23	29 13	30 1	30 36	30 50
17	29 4	28 30	28 28	28 44	29 17	30 4	30 55	31 44	32 20	32 35
18	30 54	30 16	30 9	30 20	30 57	31 44	32 37	33 27	34 3	34 18
	30	♓ 20	10	0	♒ 20	10	0	♑ 20	10	0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 54 Degrees.

Pa	0	♋ 10	20	0	♌ 10	20	0	♍ 10	20	0
3	7 17	7 13	6 55	6 30	6 10	5 49	5 31	5 18	5 10	5 7
4	9 56	9 48	9 23	8 50	8 17	7 48	7 22	7 5	6 54	6 49
5	12 40	12 31	11 57	11 13	10 28	9 50	9 17	8 54	8 39	8 30
6	15 39	15 24	14 38	13 40	12 44	11 55	11 14	10 44	10 25	10 15
7	18 48	18 26	17 28	16 14	15 2	14 5	13 10	12 35	12 11	11 58
8	22 10	21 44	20 29	18 56	17 27	16 15	15 10	14 27	13 58	13 40
9	25 59	25 20	23 44	21 46	19 57	18 27	17 15	16 21	15 46	15 26
10	30 18	29 25	27 16	24 47	22 34	20 44	19 19	18 16	17 34	17 11
11	35 35	34 16	31 16	28 0	25 17	22 7	21 27	20 14	19 24	18 57
12	47 20	40 39	35 58	31 38	28 10	25 35	23 37	22 14	21 17	20 45
13			42 0	35 41	31 20	28 10	25 50	24 15	23 10	22 30
14			56 9	40 31	34 44	30 54	28 11	26 19	25 4	24 18
15				46 59	38 31	33 46	30 36	28 26	26 49	26 8
16					42 54	36 50	33 6	30 36	28 57	27 58
17					48 27	40 15	35 44	32 51	30 58	29 50
18					57 34	44 0	38 30	35 9	33 0	31 45
	30	♊ 20	10	0	♉ 20	10	0	♈ 20	10	0

	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	30
3	5 7	5 7	5 10	5 21	5 34	5 50	6 8	6 20	6 36	6 40
4	6 49	6 48	6 54	7 5	7 20	7 44	8 6	8 26	8 40	8 49
5	8 30	8 31	8 38	8 51	9 19	9 36	10 4	10 26	10 45	10 54
6	10 15	10 14	10 21	10 36	10 58	11 27	11 58	12 25	12 46	12 56
7	11 58	11 55	12 4	12 20	12 44	13 17	13 50	14 20	14 45	14 55
8	13 40	13 37	13 45	14 4	14 30	15 6	15 44	16 18	16 44	16 54
9	15 26	15 19	15 26	15 47	16 15	16 54	17 34	18 11	18 39	18 50
10	17 11	17 0	17 9	17 29	17 59	18 40	19 24	20 4	20 34	20 45
11	18 57	18 46	18 50	19 10	19 44	20 26	21 10	21 54	22 25	22 38
12	20 44	20 29	20 34	20 54	21 27	22 10	23 0	23 45	24 17	24 31
13	22 30	22 14	22 16	22 36	23 10	23 57	24 47	25 34	26 7	26 21
14	24 18	23 58	23 59	24 18	24 54	25 41	26 34	27 20	27 47	28 10
15	26 8	25 44	25 41	26 0	26 36	27 25	28 18	29 9	29 45	30 0
16	27 58	27 28	27 25	27 40	28 18	29 8	30 3	30 55	31 30	31 48
17	29 50	29 15	29 8	29 25	30 0	30 51	32 47	32 41	33 19	33 35
18	31 44	31 0	30 50	31 7	31 40	32 34	33 31	34 26	35 5	35 20
	30	♓ 20	10	0	♒ 20	10	0	♑ 20	10	0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 55 Degrees.

Pa	0	♋ 20	10	0	♌ 20	10	0	♍ 10	20	30
3	7 40	7 34	7 16	6 48	6 20	5 59	5 40	5 26	5 18	5 14
4	10 31	10 18	9 51	9 12	8 35	8 0	7 36	7 16	7 5	6 59
5	13 20	13 10	12 35	11 42	10 50	10 8	9 30	9 8	8 54	8 44
6	16 41	16 19	15 28	14 20	13 14	12 18	11 34	11 1	10 41	10 29
7	20 9	19 40	18 30	17 4	15 14	14 31	13 37	12 56	12 29	12 16
8	23 59	23 20	21 49	19 56	18 12	16 46	15 40	14 52	14 20	14 0
9	28 20	27 26	25 24	23 0	20 50	19 6	17 46	16 49	16 11	15 58
10	33 44	32 21	29 27	26 18	23 38	21 31	19 56	18 48	18 5	17 37
11	41 30	38 50	34 14	29 57	26 34	24 0	22 10	20 49	19 57	19 26
12			40 24	34 5	29 46	26 40	24 27	22 52	21 52	21 15
13				38 56	33 10	29 26	26 48	25 0	23 47	23 5
14				43 30	27 3	32 21	29 15	27 9	25 46	24 57
15					41 31	35 29	31 48	29 21	27 44	26 49
16					47 6	38 54	34 28	31 38	29 49	28 44
17					56 25	42 44	37 18	33 59	31 52	30 40
18						47 10	40 18	36 26	33 55	32 36
	30	♊ 20	10	0	♉ 20	10	0	♈ 20	10	0

	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	30
3	4 14	5 4	5 21	5 30	5 44	6 2	6 20	6 38	6 52	6 58
4	6 49	6 58	7 6	7 8	7 56	7 59	8 24	8 46	9 3	9 10
5	8 44	8 42	8 52	9 6	9 6	9 54	10 24	10 51	11 11	11 19
6	10 30	10 28	10 37	10 53	11 18	11 40	12 22	12 55	13 16	13 25
7	12 16	12 14	12 22	12 40	12 57	13 41	14 20	14 55	15 19	15 29
8	14 4	13 58	14 7	14 26	14 56	15 34	16 14	16 52	17 20	17 31
9	15 50	15 44	15 51	16 11	16 34	17 25	18 7	18 49	19 19	19 31
10	17 14	17 28	17 36	17 56	18 30	19 14	20 0	20 44	21 17	21 30
11	19 26	19 15	19 22	19 41	20 7	21 2	21 51	22 38	23 13	23 26
12	21 15	21 0	21 6	21 26	22 5	22 50	23 42	24 31	25 8	25 22
13	23 5	22 46	22 50	23 11	23 39	24 37	25 32	26 23	27 1	27 15
14	24 57	24 34	24 36	24 56	25 34	26 24	27 21	28 14	28 53	29 8
15	26 49	26 22	26 21	26 41	27 9	28 11	29 9	30 4	30 44	30 59
16	28 44	28 11	28 8	28 25	29 4	29 57	30 57	31 53	32 35	32 51
17	30 40	30 1	29 55	30 10	30 49	31 44	32 44	33 41	34 24	34 40
18	32 36	31 51	31 41	31 55	39 33	33 28	34 30	35 29	36 13	36 36
	30	♓ 20	10	0	♒ 20	10	0	♑ 20	10	0

A TABLE OF TWILIGHT,

Shewing the Crepuſculane Circles for the Latitude of 56 Degrees.

Pa	0	♋ 10	20	0	♌ 10	20	0	♍ 10	20	30
3	8 9	8 1	7 32	7 8	6 37	6 12	5 50	5 37	5 26	5 2
4	11 10	10 56	10 24	9 40	8 56	8 20	7 50	7 30	7 16	7 1
5	14 24	14 5	13 10	12 10	11 19	10 31	9 52	9 25	9 7	8 5
6	17 55	17 30	16 26	15 6	13 48	12 46	11 57	11 22	10 58	10 4
7	21 49	21 14	19 42	18 2	16 24	15 4	14 4	13 20	12 50	12 3
8	26 17	25 25	23 26	21 9	19 5	17 27	16 14	15 20	14 44	14 2
9	31 41	30 24	27 35	24 31	22 54	19 55	18 42	17 21	16 39	16 1
10	39 34	36 58	32 25	28 11	24 54	22 28	20 39	19 24	18 35	18 6
11				32 22	28 5	25 8	22 58	21 30	20 31	19 57
12				37 21	31 32	26 56	25 24	23 35	22 30	21 5
13				44 0	35 31	30 54	27 9	25 51	24 31	23 4
14					40 4	34 5	30 27	28 5	26 34	25 3
15					45 45	37 32	33 9	30 21	28 38	27 3
16					55 5	41 27	36 2	32 38	30 45	29 3
17						45 58	39 7	35 6	32 55	31 3
18						51 40	42 25	37 54	35 9	33 3
	30	♊ 20	10	0	♉ 20	10	0	♈ 20	10	0

	0	♎ 10	20	0	♏ 10	20	0	♐ 10	20	30
3	5 22	5 24	5 28	5 40	5 54	6 14	6 35	6 55	7 11	7 18
4	7 10	7 10	7 16	7 30	7 49	8 15	8 41	9 7	9 27	9 35
5	8 58	8 58	9 5	9 21	9 44	10 14	10 45	11 16	11 40	11 49
6	10 46	10 45	10 54	11 12	11 27	12 11	12 47	13 22	13 50	14 0
7	12 35	12 32	12 40	13 1	13 29	14 8	14 47	15 28	15 58	16 9
8	14 25	14 20	14 28	14 50	15 21	16 4	16 47	17 29	18 5	18 15
9	16 15	16 8	16 15	16 38	17 11	17 56	18 42	19 29	20 6	20 19
10	18 6	17 56	18 4	18 26	19 1	19 49	20 39	21 28	22 7	22 21
11	19 57	19 44	19 50	20 14	20 50	21 41	22 34	23 27	24 7	24 21
12	21 50	21 34	21 38	22 1	22 39	23 32	24 28	25 24	26 5	26 20
13	23 43	23 24	23 25	23 49	24 28	25 22	26 20	27 18	28 1	28 17
14	25 38	25 14	25 14	25 36	26 16	27 12	28 12	29 10	29 57	30 14
15	27 34	27 4	27 1	27 24	28 4	29 1	30 2	31 5	31 50	32 7
16	29 32	28 56	28 50	29 11	29 51	30 49	31 52	32 57	33 45	34 2
17	31 31	30 49	30 39	30 59	31 39	32 39	33 42	34 50	35 36	35 52
18	33 34	32 44	32 29	32 46	33 26	34 26	35 38	36 28	37 28	37 46
	30	♓ 20	10	0	♒ 20	10	0	♑ 20	10	0

A TABLE of MUNDANE ASPECTS.

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Semidiurnal or ſeminocturnal Arcbs.		*Space of one Houſe.*		*Semiquartile.* Smq. ½ H T		*Sextile.* * ½ H T		*Quintile.* Q ⅕ Arc sub from [illegible]		*Quartile.* □		*Trine.* △ H T		*Seſquiquadrate.* Sſq. ½ H T		*Byquintile.* Bq. ⅖ Arc sub from [illegible]		*Oppoſition.* 8	
h.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.
3	0	15	0	22	30	30	0	36	0	45	0	60	0	67	30	72	0	90	0
3	6	15	30	23	15	31	0	37	12	46	30	62	0	69	45	74	24	93	0
3	12	16	0	24	0	32	0	38	24	48	0	64	0	72	0	76	48	96	0
3	18	16	30	24	45	33	0	39	36	49	30	66	0	74	15	79	12	99	0
3	24	17	0	25	30	34	0	40	48	51	0	68	0	76	30	81	36	102	0
3	30	17	30	26	15	35	0	42	0	52	30	70	0	78	45	84	0	105	0
3	36	18	0	27	0	36	0	43	12	54	0	72	0	81	0	86	24	108	0
3	42	18	30	27	45	37	0	44	24	55	30	74	0	83	15	88	48	111	0
3	48	19	0	28	30	38	0	45	36	57	0	76	0	85	30	91	12	114	0
3	54	19	30	29	15	39	0	46	48	58	30	78	0	87	45	93	36	117	0
4	0	20	0	30	0	40	0	48	0	60	0	80	0	90	0	96	0	120	0
4	6	20	30	30	45	41	0	49	12	61	30	82	0	92	15	98	24	123	0
4	12	21	0	31	30	42	0	50	24	63	0	84	0	94	30	100	48	126	0
4	18	21	30	32	15	43	0	51	36	64	30	86	0	96	45	103	12	129	0
4	24	22	0	33	0	44	0	52	48	66	0	88	0	99	0	105	36	132	0
4	30	22	30	33	45	45	0	54	0	67	30	90	0	101	15	108	0	135	0
4	36	23	0	34	30	46	0	55	12	69	0	92	0	103	30	110	24	138	0
4	42	23	30	35	15	47	0	56	24	70	30	94	0	105	45	112	48	141	0
4	48	24	0	36	0	48	0	57	36	72	0	96	0	108	0	115	12	144	0
4	54	24	30	36	45	49	0	58	48	73	30	98	0	110	15	117	36	147	0
5	0	25	0	37	30	50	0	60	0	75	0	100	0	112	30	120	0	150	0
5	6	25	30	38	15	51	0	61	12	76	30	102	0	114	45	122	24	153	0
5	12	26	0	39	0	52	0	62	24	78	0	104	0	117	0	124	48	156	0
5	18	26	30	39	45	53	0	63	36	79	30	106	0	119	15	127	12	159	0
5	24	27	0	40	30	54	0	64	48	81	0	108	0	121	30	129	36	162	0
5	30	27	30	41	15	55	0	66	0	82	30	110	0	123	45	132	0	165	0
5	36	28	0	42	0	56	0	67	12	84	0	112	0	126	0	134	24	168	0
5	42	28	30	42	45	57	0	68	24	85	30	114	0	128	15	136	48	171	0
5	48	29	0	43	30	58	0	69	36	87	0	116	0	130	30	139	12	174	0
5	54	29	30	44	15	59	0	70	48	88	30	118	0	132	45	141	36	177	0
6	0	30	0	45	0	60	0	72	0	90	0	120	0	135	0	144	0	180	0
				½ H T		½ H T to [illegible]		⅕ Arc sub from □		□		H T		½ H T add		⅖ Arc sub from 8			

⅕

Arc ⅕ 45
9
18

⅕ 45 = 9
9 Sub
36 Quintile

⅖ Arc
18
6
or ⅕ of × added
× ⅕ 30
6
36

90
18
72

A TABLE of MUNDANE ASPECTS.

Semidiurnal or ſeminocturnal Archs.		*Space of one Houſe.*		*Semiquartile.* Smq.		*Sextile.* *		*Quintile.* Q.		*Quartile.* □		*Trine.* △		*Seſquiquadrate.* Sſq.		*Byquintile.* Bq.		*Oppoſition.* ☍	
h.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.
6	0	30	0	45	0	60	0	72	0	90	0	120	0	135	0	144	0	180	0
6	6	30	30	45	45	61	0	73	12	91	30	122	0	137	15	146	24	183	0
6	12	31	0	46	30	62	0	74	24	93	0	124	0	139	30	148	48	186	0
6	18	31	30	47	15	63	0	75	36	94	30	126	0	141	45	151	12	189	0
6	24	32	0	48	0	64	0	76	48	96	0	128	0	144	0	153	36	192	0
6	30	32	30	48	45	65	0	78	0	97	30	130	0	146	15	156	0	195	0
6	36	33	0	49	30	66	0	79	12	99	0	132	0	148	30	158	24	198	0
6	42	33	30	50	15	67	0	80	24	100	30	134	0	150	45	160	48	201	0
6	48	34	0	51	0	68	0	81	36	102	0	136	0	153	0	163	12	204	0
6	54	34	30	51	45	69	0	82	48	103	30	138	0	155	15	165	36	207	0
7	0	35	0	52	30	70	0	84	0	105	0	140	0	157	30	168	0	210	0
7	6	35	30	53	15	71	0	85	12	106	30	142	0	159	45	170	24	213	0
7	12	36	0	54	0	72	0	86	24	108	0	144	0	162	0	172	48	216	0
7	18	36	30	54	45	73	0	87	36	109	30	146	0	164	15	175	12	219	0
7	24	37	0	55	30	74	0	88	48	111	0	148	0	166	30	177	36	222	0
7	30	37	30	56	15	75	0	90	0	112	30	150	0	168	45	180	0	225	0
7	36	38	0	57	0	76	0	91	12	114	0	152	0	171	0	182	24	228	0
7	42	38	30	57	45	77	0	92	24	115	30	154	0	173	15	184	48	231	0
7	48	39	0	58	30	78	0	93	36	117	0	156	0	175	30	187	12	234	0
7	54	39	30	59	15	79	0	94	48	118	30	158	0	177	45	189	36	237	0
8	0	40	0	60	0	80	0	96	0	120	0	160	0	180	0	192	0	240	0
8	6	40	30	60	45	81	0	97	12	121	30	162	0	182	15	194	24	243	0
8	12	41	0	61	30	82	0	98	24	123	0	164	0	184	30	196	48	246	0
8	18	41	30	62	15	83	0	99	36	124	30	166	0	186	45	199	12	249	0
8	24	42	0	63	0	84	0	100	48	126	0	168	0	186	0	201	36	252	0
8	30	42	30	63	45	85	0	101	0	127	30	170	0	191	15	204	0	255	0
8	36	43	0	64	30	86	0	102	12	129	0	172	0	193	30	206	24	258	0
8	42	43	30	65	15	87	0	103	24	130	30	174	0	195	45	208	48	261	0
8	48	44	0	66	0	88	0	104	36	132	0	176	0	198	0	211	12	264	0
8	54	44	30	66	45	89	0	105	48	133	30	178	0	100	15	213	36	267	0
9	00	45	0	67	30	90	0	106	0	135	0	180	0	102	30	216	0	270	0

12.27

OBSERVATIONS

ON THE

VARIATION of the SUN's PLACE, DECLINATION and RIGHT ASCENSION.

The Sun's Place vary annually, by reaſon of the odd 5 Hours 49 Minutes, of which the Solar Year conſiſt, over and above 365 Days, and alſo by reaſon of the Receſſion of the Equinoctial Points; conſequently the Declination and Right Aſcenſion will vary alſo, and no ſet of Tables can anſwer with accuracy above four Years, we have therefore ſubjoined the following Table whereby either the Tables of Right Aſcenſion or Declination may be rectiſied, as by the following Example

	D.	M.
January 28, 1765 Sun's Place in ♒ —— ——	8 :	55
Variation 8 Years = 3 : 29 which call ——		3
January 28, 1773. Sun's Place in ♒ —— ——	8 :	58

	D.	M.
January 28, 1765, Sun's Declination South ——	18 :	04
Variation 8 Years, Decreaſing 54 Sec. or ——		1
January 28, 1773. Sun's Declination —— —	18 :	03

	H.	M.	S.
January 28, 1765. Sun's Right Aſcenſion —	20 :	46 :	00
Variation 8 Years —— —— ——			14
January 28, 1773. Sun's Right Aſcenſion —	20 :	46 :	14

The above are taken from the following Table by dividing the Arch of Sixty by the Rule of Proportion, thus, If 60 Years give 25′ : 59″ what will 8 Years give, viz. 3′ : 29″ do the ſame with the reſt.

A Table of Variations of the Sun's Place, Declination and Right Aſcenſion for 60, 80, and 100 Years to come.

	60 *Years.*					80 *Years.*					100 *Years.*			
	Sun's Place.		*Dec.*	*R A.*		*Sun's Pl*		*Dec.*	*R.A*		*Sun's Pl*		*Dec.*	*R A*
	M. S.		M. S	M.S.		M. S		M. S	M.S		M. S		M. S.	M.S
Jan. 5		S	3 01		S		S	4 01	2 29	S		S	5 02	3 06
12	25 59		4 07	1 49		34 39		5 30	2 26		43 19		6 53	3 03
21	26 03		5 42	1 47		34 44		7 37	2 23		43 25		9 31	2 38
31	26 09		7 12	1 46		34 52		9 36	2 21		43 35		12 00	2 56
Feb. 10	26 17		8 27	1 43		35 02		11 15	2 18		43 48		14 04	2 52
20	26 26		9 25	1 41		35 15		12 34	2 15		44 04		15 43	2 49
Mar. 1	26 37		10 09	1 40		35 30		13 32	2 13		44 22		16 55	2 46
11	26 48		10 36	1 38		35 45		14 08	2 11		44 41		17 40	2 44
21	27 07	A	10 46	1 39	A	36 01	A	14 21	2 12	A	45 02	A	17 57	2 45
31	27 14		10 39	1 39		36 18		14 13	2 15		45 23		17 46	2 48
Apr. 10	27 26		10 18	1 43		36 35		13 43	2 18		45 44		17 09	2 52
20	27 38		9 39	1 46		36 51		12 52	2 22		46 04		16 05	2 57
30	27 49		8 42	1 49		37 05		11 37	2 26		46 22		14 31	3 02
May 10	27 59		7 28	1 52		37 18		9 58	2 30		46 38		12 28	3 07
20	28 08		5 58	1 56		37 30		7 59	2 30		46 52		9 58	3 13
30	28 14		4 15	2 01		37 30		5 40	2 41		47. 04		7 04	3 21
June 9	28 19		2 19	2 03		37 46		3 05	2 44		47 12		3 52	3 25
19	28 22	S	0 16		S	37 50	S	0 22		3	47 17	S	0 28	
29	28 23		1 45			37 55		2 20			47 19		2 55	
July 9	28 22		3 42	2 01		37 49		4 57	2 42		47 17		6 11	3 22
19	28 19		5 31	1 59		37 45		7 21	2 39		47 12		9 12	3 18
29	28 15		7 07	1 55		37 40		9 29	2 34		47 05		11 52	3 12
Aug. 8	28 08		8 27	1 51		37 31		11 16	2 28		46 54		14 05	3 05
18	28 00		9 30	1 47		37 21		12 39	2 23		46 41		15 49	2 59
28	27 51		10 15	1 45		37 09		13 39	2 20		46 26		17 04	2 55
Sept. 7	27 40		10 45	1 43		36 53		14 20	2 18		46 07		17 55	2 52
17	27 28	A	10 55	1 41	A	36 37	A	14 33	2 15	A	45 47	A	18 12	2 49
27	27 16		10 51	1 40		36 21		14 27	2 14		45 27		18 04	2 47
Oct. 7	27 03		10 30			36 05		13 59	2 13		45 06		17 29	2 46
17	26 51		9 51	1 41		35 29		13 09	2 15		44 46		16 27	2 49
27	26 39		8 58	1 43		35 13		11 58	2 18		44 26		14 58	2 52
Nov. 6	26 29		7 44	1 45		35 14		10 25	2 20		44 08		13 02	2 55
16	26 19		6 24	1 47		35 05		8 32	2 23		43 52		10 40	2 59
26	26 11		4 45	1 50		34 56		6 19	2 27		43 38		7 54	3 04
Dec 6	26 04		2 54	1 52		34 48		3 52	2 30		43 27		4 50	3 07
16	26 00	S	0 55	1 53	S	34 44	S	1 14	2 31	S	43 20	S	1 33	3 08
26	25 58		1 06	1 52		34 37		1 27	2 30		43 17		1 49	3 07

A CATALOGUE

Of 30 eminent fixed Stars, taken from the Tables of DE LA LANDE. Corrected to the Year 1750.

Names of the Stars.	Latitude.	Right Aſcenſion.	Declination.	Semidiurnal Arc.	Magnitude	Nature.
	° ′ ″	° ′ ″	° ′ ″	h. m. s.		
Andromeda's Head	25 41 5 N	358 52 40	27 42 45 N	8 52 19	2	♃ ♀
Ram's Following Horn	9 57 31 N	27 17 5	22 16 7 N	8 9 35	2	♄ ♂
Meduſa's Head Algol	22 24 3 N	43 0 0	39 58 20 N	Sets not	2	♄ ♃
Brighteſt of the Seven Stars	4 1 33 N	53 10 0	23 18 39 N	8 16 40	3	♂ ☽
Bull's South Eye Aldebaran	5 29 0 S	65 24 2	15 59 3 N	7 28 51	1	♂
Orion's Left Foot Rigel	31 9 13 S	75 38 10	8 30 35 S	5 20 28	1	♃ ♄
Bull's North Horn	5 21 55 N	77 37 26	28 27 2 N	8 57 1	2	♃ ♄
Orion's Left Shoulder	16 50 53 S	77 56 1	6 5 57 N	6 34 41	2	♂ ☿
Orion's Girdle	24 32 18 S	80 53 10	1 21 24 S	5 56 42	2	♃ ♄
Orion's Right Shoulder	16 3 32 S	85 24 41	7 20 15 N	6 40 58	1	☿ ♂
Sirius	39 32 58 S	98 32 2	16 23 35 S	4 36 55	1	♃ ♂
Caſtor	10 4 32 N	109 39 0	32 24 36 N	9 38 21	1	♂ ☿ ♄
Pollux	6 40 0 N	112 29 38	38 36 22 N	8 58 13	2	♂
Procyon	15 58 9 S	111 32 57	5 50 42 N	6 32 50	1	☿ ♂
Hydra's Heart	22 23 47 S	138 49 39	7 35 11 S	5 24 20	2	♄ ♀
Lyon's Heart	0 27 32 N	148 45 22	13 10 51 N	7 11 28	1	♄ ☿
Lyon's Tail Deneb	12 17 12 N	174 4 16	15 58 10 N	7 27 18	2	♄ ♀ ☿
Virgin's Spike Ariſta	2 2 5 S	198 0 54	9 50 50 S	5 12 20	1	♀ ♂
Boot's Arcturus	30 54 30 N	211 3 59	20 29 39 N	7 55 26	1	♂ ♃
Libra Southern Scale	0 21 54 N	219 16 23	14 59 8 S	4 44 23	2	♄ ♀
Libra Northern Scale	8 31 35 N	225 53 51	8 26 28 S	5 19 57	2	♃ ♂
Bright Star of the N. Crown	44 21 4 N	231 1 37	27 34 21 N	8 48 36	2	♂ ♃
Scorpion's Heart Antares	4 32 11 S	243 31 55	25 51 6 S	3 34 6	1	☿
Hercules Head	37 19 0 N	255 48 46	14 41 46 N	7 20 41	2	♂ ♀
Head of Serpentarius	35 53 2 N	260 50 3	12 45 49 N	7 9 50	2	♄ ♀
Bright Star in the Harp	36 14 1 S	301 25 19	57 30 20 S	Sets not	1	♂ ♃
Bright Star of the Eagle	29 18 46 N	294 38 46	8 13 45 N	6 45 57	2	♄ ☿
Fomalhaut	21 6 13 S	340 56 42	30 56 21 S	2 52 6	1	♀ ☿
Markab Pegaſus	19 24 46 N	343 4 47	13 51 59 N	7 17 10	2	♂ ☿
Scheat Pegaſus	31 8 11 N	342 55 11	26 43 55 N	8 40 0	2	♄

A Table of the Retroceſſion of the Equinox, or Progreſſion of the fixed Stars in Longitude.

Years.	*Receſſion of the Equinox.*			Years.	*Receſſion of the Equinox.*			Years.	*Receſſion of the Equinox.*			Years.	*Receſſion of the Equinox.*		
	D.	'	"		D.	'	"		D.	'	"		D.	'	"
1	0	0	50	30	0	25	0	59	0	49	10	88	1	13	20
2	0	1	40	31	0	25	50	60	0	50	0	89	1	14	10
3	0	2	30	32	0	26	40	61	0	50	50	90	1	15	0
4	0	3	20	33	0	27	30	62	0	51	40	91	1	15	50
5	0	4	10	34	0	28	20	63	0	52	30	92	1	16	40
6	0	5	0	35	0	29	10	64	0	53	20	93	1	17	30
7	0	5	50	36	0	30	0	65	0	54	10	94	1	18	20
8	0	6	40	37	0	30	50	66	0	55	0	95	1	19	10
9	0	7	30	38	0	31	40	67	0	55	50	96	1	20	0
10	0	8	20	39	0	32	30	68	0	56	40	97	1	20	50
11	0	9	10	40	0	33	20	69	0	57	30	98	1	21	40
12	0	10	0	41	0	34	10	70	0	58	20	99	1	22	30
13	0	10	50	42	0	35	0	71	0	59	10	100	1	23	20
14	0	11	40	43	0	35	50	72	1	0	0	200	2	46	41
15	0	12	30	44	0	36	40	73	1	0	50	300	4	10	1
16	0	13	20	45	0	37	30	74	1	1	40	400	5	33	22
17	0	14	10	46	0	38	20	75	1	2	30	500	6	56	42
18	0	15	0	47	0	39	10	76	1	3	20	600	8	20	3
19	0	15	50	48	0	40	0	77	1	4	10	700	9	43	23
20	0	16	40	49	0	40	50	78	1	5	0	800	11	6	44
21	0	17	30	50	0	41	40	79	1	5	50	900	12	30	4
22	0	18	20	51	0	42	30	80	1	6	40	1000	13	53	25
23	0	19	10	52	0	43	20	81	1	7	30	2000	27	46	50
24	0	20	0	53	0	44	10	82	1	8	20	3000	41	40	15
25	0	20	50	54	0	45	0	83	1	9	10	4000	55	33	40
26	0	21	40	55	0	45	50	84	1	10	0	5000	69	27	5
27	0	22	30	56	0	46	40	85	1	10	50	6000	83	20	30
28	0	23	20	57	0	47	30	86	1	11	40	7000	97	13	55
29	0	24	10	58	0	48	20	87	1	12	30	8000	111	7	20

The above Table ſhews, the Retroceſſion of the Equinox, and points out what is to be added, or ſubſtracted, from the fixed Stars, for any Years paſt or to come, as Example,

The place of Aldebaran on Jan. 1, 1665, is 5° : 5' : 0" ♊
I enter the Table for 124 Years and it gives 1 : 43 : 20 which
being added to the above gives the true place ———————
of Aldebaran for Jan. 1, 1789, to be — 6 : 48 : 20 of ♊
but if the place of Aldebaran or any other fixed Star had been wanted to be known before the Year 1665, it muſt have been ſubſtracted.

for 1665

The Diurnal Motions of ♄. ♃. ♂. ☉. ♀. ☿. ☽.

Hourly Motions of the Planets.

Hours of the Day.	1			2			3			4			5			6			7			8		
	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s
	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t
	S	t	f	S	t	f		t	f	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f
	0	2	30	0	5	0	0	7	30	0	10	0	0	12	30	0	15	0	0	17	30	0	20	0
1	0	5	0	0	10	0	0	15	0	0	20	0	0	25	0	0	30	0	0	35	0	0	40	0
2	0	7	30	0	15	0	0	22	30	0	30	0	0	37	30	0	45	0	0	52	30	1	0	0
3	0	10	0	0	20	0	0	30	0	0	40	0	0	50	0	1	0	0	1	10	0	1	20	0
4	0	12	30	0	25	0	0	37	30	0	50	0	1	2	30	1	15	0	1	27	30	1	40	0
5	0	15	0	0	30	0	0	45	0	1	0	0	1	15	0	1	30	0	1	45	0	2	0	0
6	0	17	30	0	35	0	0	52	30	1	10	0	1	27	30	1	45	0	2	2	30	2	20	0
7	0	20	0	0	40	0	1	0	0	1	20	0	1	40	0	2	0	0	2	20	0	2	40	0
8	0	22	30	0	45	0	1	7	30	1	30	0	1	52	30	2	15	0	2	37	30	3	0	0
9	0	25	0	0	50	0	1	15	0	1	40	0	2	5	0	2	30	0	2	55	0	3	20	0
10	0	27	30	0	55	0	1	22	30	1	50	0	2	17	30	2	45	0	3	12	30	3	40	0
11	0	30	0	1	0	0	1	30	0	2	0	0	2	30	0	3	0	0	3	30	0	4	0	0
12	0	32	30	1	5	0	1	37	30	2	10	0	2	42	30	3	15	0	3	47	30	4	20	0
13	0	35	0	1	10	0	1	45	0	2	20	0	2	55	0	3	30	0	4	5	0	4	40	0
14	0	37	30	1	15	0	1	52	30	2	30	0	3	7	30	3	45	0	4	22	30	5	0	0
15	0	40	0	1	20	0	2	0	0	2	40	0	3	20	0	4	0	0	4	40	0	5	20	0
16	0	42	30	1	25	0	2	7	30	2	50	0	3	32	30	4	15	0	4	57	30	5	40	0
17	0	45	0	1	30	0	2	15	0	3	0	0	3	45	0	4	30	0	5	15	0	6	0	0
18	0	47	30	1	35	0	2	22	30	3	10	0	3	57	30	4	45	0	5	32	30	6	20	0
19	0	50	0	1	40	0	2	30	0	3	20	0	4	10	0	5	0	0	5	50	0	6	40	0
20	0	52	30	1	45	0	2	37	30	3	30	0	4	22	30	5	15	0	6	7	30	7	0	0
21	0	55	0	1	50	0	2	45	0	3	40	0	4	35	0	5	30	0	6	25	0	7	20	0
22	0	57	30	1	55	0	2	52	30	3	50	0	4	47	30	5	45	0	6	42	30	7	40	0
23	1	0	0	2	0	0	3	0	0	4	0	0	5	0	0	6	0	0	7	0	0	8	0	0
24																								

The Diurnal Motions of ♄ · ♃ · ♂ · ☉ · ♀ · ☿ · ☽

Hourly Motions of the Planets.

Hours of the Day.	9	10	11	12	13	14	15	16
	D. m s	D. m s	D. m s	D. m s	D. m s	D. m s	D. m s	D. m
	M s t	M s t	M s t	M s t	M s t	M s t	M s t	M s t
	S t f	S t f	S t f	S t f	S t f	S t f	S t f	S t f
1	0 22 30	0 25 0	0 27 30	0 30 0	0 32 30	0 35 0	0 37 30	0 40 0
2	0 45 0	0 50 0	0 55 0	1 0 0	1 5 0	1 10 0	1 15 0	1 20 0
3	1 7 30	1 15 0	1 22 30	1 30 0	1 37 30	1 45 0	1 52 30	2 0 0
4	1 30 0	1 40 0	1 50 0	2 0 0	2 10 0	2 20 0	2 30 0	2 40 0
5	1 52 30	2 5 0	2 17 30	2 30 0	2 42 30	2 55 0	3 7 30	3 20 0
6	2 15 0	2 30 0	2 45 0	3 0 0	3 15 0	3 30 0	3 45 0	4 0 0
7	2 37 30	2 55 0	3 12 30	3 30 0	3 47 30	4 5 0	4 22 30	4 40 0
8	3 0 0	3 20 0	3 40 0	4 0 0	4 20 0	4 40 0	5 0 0	5 20 0
9	3 22 30	3 45 0	4 7 30	4 30 0	4 52 30	5 15 0	5 37 30	6 0 0
10	3 45 0	4 10 0	4 35 0	5 0 0	5 25 0	5 50 0	6 15 0	6 40 0
11	4 7 30	4 35 0	5 2 30	5 30 0	5 57 30	6 25 0	6 52 30	7 20 0
12	4 30 0	5 0 0	5 30 0	6 0 0	6 30 0	7 0 0	7 30 0	8 0 0
13	4 52 30	5 25 0	5 57 30	6 30 0	7 2 30	7 35 0	8 7 30	8 40 0
14	5 15 0	5 50 0	6 25 0	7 0 0	7 35 0	8 10 0	8 45 0	9 20 0
15	5 37 30	6 15 0	6 52 30	7 30 0	8 7 30	8 45 0	9 22 30	10 0 0
16	6 0 0	6 40 0	7 20 0	8 0 0	8 40 0	9 20 0	10 0 0	10 40 0
17	6 22 30	7 5 0	7 47 30	8 30 0	9 12 30	9 55 0	10 37 30	11 20 0
18	6 45 0	7 30 0	8 15 0	9 0 0	9 45 0	10 35 0	11 15 0	12 0 0
19	7 7 30	7 55 0	8 42 30	9 30 0	10 17 30	11 5 0	11 52 30	12 40 0
20	7 30 0	8 20 0	9 10 0	10 0 0	10 50 0	11 40 0	12 30 0	13 20 0
21	7 52 30	8 45 0	9 37 30	10 30 0	11 22 30	12 15 0	13 7 30	14 0 0
22	8 15 0	9 10 0	10 5 0	11 0 0	11 55 0	12 50 0	13 45 0	14 40 0
23	8 37 30	9 35 0	10 32 30	11 30 0	12 27 30	13 25 0	14 22 30	15 20 0
24	9 0 0	10 0 0	11 0 0	12 0 0	13 0 0	14 0 0	15 0 0	16 0 0

The Diurnal Motions of ♄. ♃. ♂. ☉. ♀. ☿. ☽.

Hourly Motions of the Planets.

Hours of the Day.	17			18			19			20			21			22			23			24		
	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s
	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t
	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f
1	0	42	30	0	45	0	0	47	30	0	50	0	0	52	30	0	55	0	0	57	30	1	0	0
2	1	25	0	1	30	0	1	35	0	1	40	0	1	45	0	1	50	0	1	55	0	2	0	0
3	2	7	30	2	15	0	2	22	30	2	30	0	2	37	30	2	45	0	2	52	30	3	0	0
4	2	50	0	3	0	0	3	10	0	3	20	0	3	30	0	3	40	0	3	50	0	4	0	0
5	3	32	30	3	45	0	3	57	30	4	10	0	4	22	30	4	35	0	4	47	30	5	0	0
6	4	15	0	4	30	0	4	45	0	5	0	0	5	15	0	5	30	0	5	45	0	6	0	0
7	4	57	30	5	15	0	5	32	30	5	50	0	6	7	30	6	25	0	6	42	30	7	0	0
8	5	40	0	6	0	0	6	20	0	6	40	0	7	0	0	7	20	0	7	40	0	8	0	0
9	6	22	30	6	45	0	7	7	30	7	30	0	7	52	30	8	15	0	8	37	30	9	0	0
10	7	5	0	7	30	0	7	55	0	8	20	0	8	45	0	9	10	0	9	35	0	10	0	0
11	7	47	30	8	15	0	8	42	30	9	10	0	9	37	30	10	5	0	10	32	30	11	0	0
12	8	30	0	9	0	0	9	30	0	10	0	0	10	30	0	11	0	0	11	30	0	12	0	0
13	9	12	30	9	45	0	10	17	13	10	50	0	11	22	30	11	55	0	12	27	30	13	0	0
14	9	55	0	10	30	0	11	5	0	11	40	0	12	15	0	12	50	0	13	25	0	14	0	0
15	10	37	30	11	15	0	11	52	30	12	30	0	13	7	30	13	45	0	14	22	30	15	0	0
16	11	20	0	12	0	0	12	40	0	13	20	0	14	0	0	14	40	0	15	20	0	16	0	0
17	12	2	30	12	45	0	13	27	30	14	10	0	14	52	30	15	35	0	16	17	30	17	0	0
18	12	45	0	13	30	0	14	15	0	15	0	0	15	45	0	16	30	0	17	15	0	18	0	0
19	13	27	30	14	15	0	15	2	30	15	50	0	16	37	30	17	25	0	18	12	30	19	0	0
20	14	10	0	15	0	0	15	50	0	16	40	0	17	30	0	18	20		19	10	0	20	0	0
21	14	52	30	15	45	0	16	37	30	17	30	0	18	22	30	19	15	0	20	7	30	21	0	0
22	15	35	0	16	30	0	17	25	0	18	20	0	19	15	0	20	10	0	21	5	0	22	0	0
23	16	17	30	17	15	0	18	12	30	19	10	0	20	7	30	21	5	0	22	2	30	23	0	0
24	17	0	0	18	0	0	19	0	0	20	0	0	21	0	0	22	0	0	23	0	0	24	0	0

The Diurnal Motions of ♄ . ♃ . ♂ . ☉ . ♀ . ☿ . ☽ .

Hourly Motions of the Planets.

Hours of the Day.	25			26			27			28			29			30			40			60		
	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s	D.	m	s
	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t	M	s	t
	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f	S	t	f
1	1	2	30	1	5	0	1	7	30	1	10	0	1	12	30	1	15	0	1	40	0	2	30	0
2	2	5	0	2	10	0	2	15	0	2	20	0	2	25	0	2	30	0	3	20	0	5	0	0
3	3	7	30	3	15	0	3	22	30	3	30	0	3	37	30	3	45	0	5	0	0	7	30	0
4	4	10	0	4	20	0	4	30	0	4	40	0	4	50	0	5	0	0	6	40	0	10	0	0
5	5	12	30	5	25	0	5	37	30	5	50	0	6	2	30	6	15	0	8	20	0	12	30	0
6	6	15	0	6	30	0	6	45	0	7	0	0	7	15	0	7	30	0	10	0	0	15	0	0
7	7	17	30	7	35	0	7	52	30	8	10	0	8	27	30	8	45	0	11	40	0	17	30	0
8	8	20	0	8	40	0	9	0	0	9	20	0	9	40	0	10	0	0	13	20	0	20	0	0
9	9	22	30	9	45	0	10	7	30	10	30	0	10	52	30	11	15	0	15	0	0	22	30	0
10	10	25	0	10	50	0	11	15	0	11	40	0	12	5	0	22	30	0	16	40	0	25	0	0
11	11	27	30	11	55	0	12	22	30	12	50	0	13	17	30	13	45	0	18	20	0	27	30	0
12	12	30	0	13	0	0	13	30	0	14	0	0	14	30	0	15	3	0	20	0	0	30	0	0
13	13	32	30	14	5	0	14	37	30	15	10	0	15	42	30	16	15	0	21	40	0	32	30	0
14	14	35	0	15	10	0	15	45	0	16	20	0	16	55	0	17	30	0	23	20	0	35	0	0
15	15	37	30	16	15	0	16	52	30	17	30	0	18	7	30	18	45		25	0	0	37	30	0
16	16	40	0	17	20	0	18	0	0	18	40	0	19	20	0	20	0	0	26	40	0	40	0	0
17	17	42	30	18	25	0	19	7	30	19	5	0	20	32	30	21	15	0	28	20	0	42	30	0
18	18	45		19	30	0	2	15	0	21	0	0	21	45	0	22	3	0	30	0	0	45	0	0
19	19	47	30	20	35	0	21	22	30	22	10	0	22	57	30	23	45	0	31	40	0	47	30	0
20	20	50	0	21	40	0	22	30	0	23	20	0	24	10	0	25	0	2	33	20	0	50	0	0
21	21	52	30	22	45	0	23	37	30	24	30	0	25	22	30	26	15	0	35	0	0	52	30	0
22	22	55	0	23	50	0	24	45	0	25	40	0	26	35	0	27	30	0	36	30	0	55	0	0
23	23	57	30	24	55	0	25	52	30	26	50	0	27	47	30	28	45	0	38	20	0	57	30	0
24	25	0	0	26	0	0	27	0	0	28	0	0	29	0	0	30	0	0	40	0	0	60	0	0

A TABLE of the Sun's Right Aſcenſion in Time, according to the Obliquity of the Ecliptic 23° 28′ being very uſeful to find the riſing, ſouthing, and ſetting of the Planets and fixed Stars.

	♈			♉			♊			♋			♌			♍		
	h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	0	0	0	1	51	37	3	51	15	6	0	0	8	8	45	10	8	25
1	0	3	40	1	55	27	3	55	25	6	4	22	8	12	54	10	12	12
2	0	7	20	1	59	17	3	59	36	6	8	43	8	17	3	10	16	0
3	0	11	0	2	3	8	4	3	48	6	13	5	8	21	11	10	19	48
4	0	14	41	2	6	59	4	8	0	6	17	26	8	25	19	10	23	35
5	0	18	21	2	10	51	4	12	13	6	21	48	8	29	26	10	27	22
6	0	22	2	2	14	44	4	16	26	6	26	9	8	33	31	10	31	8
7	0	25	42	2	18	37	4	20	40	6	30	30	8	37	37	10	34	54
8	0	29	23	2	22	31	4	24	55	6	34	51	8	41	41	10	38	40
9	0	33	4	2	26	25	4	29	10	6	39	11	8	45	45	10	42	25
10	0	36	45	2	30	20	4	33	26	6	43	31	8	49	48	10	46	9
11	0	40	26	2	34	16	4	37	42	6	47	51	8	53	51	10	49	53
12	0	44	8	2	38	13	4	41	59	6	52	11	8	57	52	10	53	37
13	0	47	50	2	42	10	4	46	16	6	56	31	9	1	53	10	57	20
14	0	51	32	2	46	8	4	50	34	7	0	50	9	5	53	11	1	3
15	0	55	14	2	50	7	4	54	52	7	5	8	9	9	53	11	4	46
16	0	58	5	2	54	7	4	59	10	7	9	26	9	13	52	11	8	28
17	1	2	40	2	58	7	5	3	29	7	13	44	9	17	50	11	12	10
18	1	6	23	3	2	8	5	7	49	7	18	1	9	21	47	11	15	52
19	1	10	7	3	6	9	5	12	9	7	22	18	9	25	44	11	19	34
20	1	13	51	3	10	12	5	16	29	7	26	34	9	29	40	11	23	15
21	1	17	35	3	14	15	5	20	49	7	30	50	9	33	35	11	26	56
22	1	21	20	3	18	19	5	25	9	7	35	5	9	37	29	11	30	37
23	1	25	6	3	22	23	5	29	30	7	39	20	9	41	23	11	34	18
24	1	28	52	3	26	29	5	33	51	7	43	34	9	45	16	11	37	58
25	1	32	28	3	30	35	5	38	12	7	47	47	9	49	9	11	41	39
26	1	36	25	3	34	41	5	42	34	7	52	0	9	53	1	11	45	19
27	1	40	12	3	38	49	5	46	55	7	56	12	9	56	52	11	49	0
28	1	44	0	3	42	57	5	51	17	8	0	24	10	0	43	11	52	40
29	1	47	48	3	47	6	5	55	38	8	4	35	10	4	33	11	56	20
30	1	51	37	3	51	15	6	0	0	8	8	45	10	8	23	12	0	0

The time of the ſouthing or meridian tranſits of the fixed ſtars may be found hus On the noon of the day, preceding the night in which you want to know he time of the ſouthing of any of thoſe ſtars, find the Sun's place in the Ephemeris, and with it take out of the above table his right aſcenſion in time; this you may do by inſpection to a minute, which will be ſufficient for your preſent purpoſe: then from the right aſcenſion of the ſtar in pa. 105, ſubtract the right aſcenſion of the Sun, the remainder will be the eſtimate time of the ſtar's ſouthing and will not differ from the true time above 2 or 3 minutes at moſt, which may be near enough for ordinary uſes. But when great exactneſs is required, reduce the Sun's place to this eſtimate time, and with it find in the above table his right aſcenſion to ſeconds, which being ſubtracted from that of the ſtar the remainder will be

A TABLE of the Sun's Right Aſcention in Time, according to the Obliquity of the Ecliptic 23° 28′, being very uſeful to find the Riſing, Southing, Setting of the Planets and fixed Stars.

	♎			♏			♐			♑			♒			♓		
	h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s
0	12	0	0	13	51	37	15	51	15	18	0	0	20	8	45	22	8	23
1	12	3	40	13	55	27	15	55	25	18	4	22	20	12	54	22	12	12
2	12	7	20	13	59	17	15	59	36	18	8	43	20	17	3	22	16	0
3	12	11	0	14	3	8	16	3	48	18	13	5	20	21	11	22	19	48
4	12	14	41	14	6	59	16	7	0	18	17	26	20	25	19	22	23	35
5	12	18	21	14	10	51	16	12	13	18	21	48	20	29	26	22	27	22
6	12	22	2	14	14	44	16	16	26	18	26	9	20	33	31	22	31	8
7	12	25	42	14	18	37	16	20	40	18	30	30	20	37	37	22	34	54
8	12	29	23	14	22	31	16	24	55	18	34	51	20	41	41	22	38	40
9	12	33	4	14	26	25	16	29	10	18	39	11	20	45	45	22	42	25
10	12	36	45	14	30	20	16	33	26	18	43	31	20	40	48	22	46	9
11	12	40	26	14	34	16	16	37	42	18	47	51	20	53	51	22	49	52
12	12	44	8	14	38	13	16	41	59	18	52	11	20	57	52	22	53	37
13	12	47	50	14	42	10	16	46	16	18	56	31	21	1	53	22	57	20
14	12	51	32	14	46	8	16	50	34	19	0	50	21	5	53	23	1	3
15	12	55	14	14	50	7	16	54	52	19	5	8	21	9	53	23	4	46
16	12	58	57	14	54	7	16	59	10	19	9	26	21	13	52	23	8	28
17	13	2	40	14	58	7	17	3	29	19	13	44	21	17	50	23	12	10
18	13	6	23	15	2	8	17	7	49	19	18	1	21	21	47	23	15	52
19	13	10	7	15	6	9	17	12	9	19	22	18	21	25	44	23	19	34
20	13	13	51	15	10	12	17	16	29	19	26	34	21	29	40	23	23	15
21	13	17	35	15	14	15	17	20	49	19	30	50	21	33	35	23	26	56
22	13	21	20	15	18	19	17	25	9	19	35	5	21	37	29	23	30	37
23	13	25	6	15	22	23	17	29	30	19	39	20	21	41	23	23	34	18
24	13	28	52	15	26	29	17	33	51	19	43	34	21	45	16	23	37	58
25	13	32	38	15	30	35	17	38	12	19	47	47	21	49	9	23	41	39
26	13	36	25	15	34	41	17	42	34	19	52	0	21	53	1	23	45	19
27	13	40	12	25	38	49	17	46	55	19	56	12	21	56	52	23	49	0
28	13	44	0	15	42	57	17	51	17	20	0	24	22	0	43	23	52	40
29	13	47	48	15	47	6	17	55	38	20	4	35	22	4	33	23	56	20
30	13	51	37	15	51	15	18	0	0	20	8	45	22	8	23	24	0	0

the true time of the Star's culminating or ſouthing. And if from the time of the Star's ſouthing you ſubtract the ſemidiurnal arc belonging to it, the remainder will be the time of the Star's riſing; and being added to the ſum will be the time of its ſetting. Annexed is an Exam. of Sirius for Jan. 21, 1789.

	h.	m.	s
Sun's place at noon ♒ 11° 24			
Right Aſcenſion of Sirius -	6	35	33
Sun's Right Aſcenſion ſubtract	20	59	0
Star's eſtimate ſouthing - -	9	36	33
Sun's Rt. Aſc. at that time ſub.	21	0	13
Star's true ſouthing - - -	9	35	20
Semid. arc. ſubtract and add -	4	36	55
Star's riſing afternoon - - -	4	58	25
Star's ſetting - - -	14	12	15

A TABLE of the Difference of Longitude, both in Time and in Degrees of the Equinoctial, between London and many noted Places of the World, as alſo their Latitudes.

The Names of Places.	Difference in Time.			Difference in Degrees			Latit.	
	h	′	″	d	′	″	d	′
Abbeville	0	07	49E	01	57	15	50	07
Aix in France	0	22	09E	05	32	15	43	31
Agra in the Indies	5	07	17E	76	49	15	26	43
St. Albans	0	01	05W	00	10	15	51	55
Aleancon	0	00	41E	00	10	15	48	29
Aleppo in Syria	2	29	41E	37	25	15	36	09
Alexandria in Egypt	2	01	17E	30	19	15	31	11
Amiens	0	09	33E	02	23	15	19	54
Amſterdam	0	19	01E	04	45	15	52	23
Angers	0	01	55W	00	28	45	47	27
Antibe	0	28	52E	07	13	05	43	34
Antwerp	0	17	21E	04	20	15	51	14
Arras	0	11	17E	02	49	15	16	18
Arles	0	19	05E	04	46	15	43	47
Avignon	0	19	25E	04	51	15	23	50
Barcelona	0	09	01E	02	15	15	21	29
Barwick	0	06	03W	01	30	45	25	49
Baſil	0	30	41E	07	40	15	37	40
Bayonne	0	05	34W	01	23	35	53	36
Beauvais	0	08	41E	02	10	15	29	26
Bedford	0	02	04W	00	31	05	22	18
Bermudas	4	13	58W	63	29	35	42	29
Beſancon	0	24	29E	06	07	15	47	29
Bolognia in Italy	0	46	49E	11	42	15	44	30
Bologn in France.	0	06	05E	01	31	15	50	40
Bourdeaux	0	02	39W	00	39	45	44	59
Bourges	0	09	57E	02	29	15	47	03
Breſt	0	17	55W	04	28	45	48	29
Briſtol	0	11	07W	02	40	45	51	28
Bruxelles	0	17	21E	04	20	12	50	51
Cales	0	22	59W	05	44	41	36	37
Caen	0	01	15W	00	18	45	19	11

The Names of Places.	Difference in Time.			Difference in Degrees			Latit.	
	h	′	″	d	′	″	d	′
Grand Cair	2	08	01E	32	00	15	30	02
Callis	0	07	31E	01	52	45	50	57
Cambray	0	13	17E	03	19	15	50	10
Cambridge	0	02	00E	00	30	00	52	17
Canterbury	0	05	06E	01	16	30	51	17
Cayenne in America	3	32	19W	53	04	45	04	56
Cape of Good Hope	1	20	39E	20	09	45	34	15S
Cape Verde	1	08	19W	17	04	45	14	43N
Cherbourg	0	06	27W	01	36	45	49	38
Cheſter	0	10	06W	02	31	30	53	10
Conſtantinople	1	55	55E	28	58	45	41	06
Cologne	0	28	41E	07	10	15	50	50
Colcheſter	0	05	04E	01	16	00	52	30
Copenhagen	0	51	22E	12	50	30	55	41
Coventry	0	06	09W	01	30	00	52	30
Cracow	1	21	41E	20	25	15	50	10
Dantzick	1	16	21E	19	05	15	54	22
Darby	0	06	00W	01	30	00	53	03
Dieppe	0	04	57E	01	14	15	49	57
Dijon	0	20	21E	05	05	15	47	20
Dublin	0	27	00W	06	45	00	53	12
Dunkirk	0	09	44E	02	26	00	51	01
Durham	0	06	00W	01	30	00	54	17
Edinburgh	0	12	00W	03	00	00	55	57
Ely	0	01	00E	00	15	00	52	20
Embrun	0	25	41E	06	25	15	44	35
Exeter	0	14	00W	03	00	00	50	53
Ferrara	0	47	25E	11	51	15	44	54
Florence	0	45	39E	11	24	45	43	46
Francfort	0	34	41E	08	40	15	50	04
La Fleche	0	00	11W	00	02	45	47	42
Gant	0	14	49E	03	42	15	51	03
Geneva	0	25	41E	06	25	15	46	12
Genua	0	34	44E	08	41	00	44	25
Gloceſter	0	09	00W	02	15	00	51	58

Goa

Places Names.	Difference in Time.			Difference in Degrees			Latit.	
	h	'	"	d	'	"	d	'
Goa	4	55	21E	73	50	15	15	31
Grantham	0	02	00W	00	30	00	52	58
Greenwich	0	00	20E	00	05	00	51	28
Gratz's	1	04	00E	16	01	30	47	02
Grenoble	0	22	29E	05	37	15	45	11
Guardaloupe	4	08	20W	62	20	00	14	00
Haphnia	0	51	30E	12	52	30	55	43
Hallifax	0	06	00W	01	30	00	53	49
Hamborough	0	40	20E	10	05	00	53	43
St. Helena	0	26	01W	06	30	15	16	00
Hereford	0	11	00W	02	45	00	52	14
Heydelbourgh	0	35	57E	08	59	15	49	36
Hieruſalem	2	27	15E	36	48	45	31	50
Hull	0	01	00W	00	15	00	53	50
Huntington	0	01	00W	00	15	00	52	24
Jamaiça (Port Royal)	5	04	00W	76	00	00	17	40
Inſpruck	0	47	00E	11	45	00	47	00
Iſle of Faro	1	10	19W	17	34	45	28	05
Iſpahan	3	31	41E	52	55	15	32	25
Kebeck in Canada	4	39	11W	69	47	45	46	55
Konningſberg	1	22	00E	20	39	00	54	43
Leyden	0	18	55E	04	43	45	52	11
Leiceſter	0	04	00W	01	00	00	52	41
Leige	0	22	41E	05	40	15	50	36
Lima in Peru	5	02	19W	75	34	45	12	20S
Lincoln	0	01	00W	00	15	00	53	15
Lipſick	0	51	41E	12	55	15	51	19
Liſbon	0	41	32W	10	23	00	38	45
Liſle in Flanders	0	12	21E	03	05	15	50	40
Liverpool	0	10	00W	02	30	00	53	22
London	0	00	00	00	00	00	51	32
Lovain	0	19	57E	04	59	15	50	50
Lyons	0	19	20E	04	50	00	45	45
Macao in China	7	32	54E	13	13	30	22	12
Madrid	0	12	19W	03	04	45	40	26

Places Names.	Difference in Time. h	′	″	Difference in Degrees d	′	″	Latit. d	′
St. Malo	0	08	19W	02	04	45	48	38
Malta	0	58	16E	14	34	00	35	51
Mancheſter	0	09	00W	02	15	00	53	24
Mantua	0	43	01E	10	45	15	45	11
Marſeilles	0	22	09E	05	32	15	43	19
Mantinico	4	03	19W	60	49	45	14	44
Meſſina								
Mexico in America	6	54	19W	103	34	45	20	00
Milan	0	36	01E	09	00	15	45	20
Montpellier	0	15	51F	03	57	45	43	37
Moſcow	2	37	41E	39	25	15	55	30
Munick	0	47	01E	11	45	15	48	02
Munſter	0	30	07E	07	31	45	52	00
Nancy	0	25	29E	06	22	15	48	42
Nantes	0	05	49W	01	27	15	47	13
Naples	0	59	01E	14	45	15	41	05
Narbonne	0	12	25E	03	06	15	43	11
Nice	0	29	26E	07	21	30	43	48
Norimberg	0	44	37E	11	09	15	49	26
Norwich	0	04	00E	01	00	00	52	44
Nottingham	0	04	00W	01	00	00	53	03
Newcaſtle	0	01	00W	00	15	00	55	03
Northampton	0	03	00W	00	45	00	52	18
Okenham	0	03	00W	00	45	00	52	44
Olinda in Braſil	2	20	19W	35	04	45	08	13So
Orleans	0	07	58E	01	59	30	47	54
Oxford	0	05	00W	01	15	00	51	43
Padua	0	45	00E	11	15	00	45	31
Paris	0	09	41E	02	25	15	48	50
Parma	0	42	25E	10	36	15	44	48
Pekin	7	46	47E	116	41	45	39	54
Peterborough	0	02	00W	00	30	00	52	35
Piſa	0	41	26E	10	21	30	43	47
Placentica	0	39	31E	09	52	45	45	05
Prague	0	55	59E	13	59	45	50	40

Places Names.	Difference in Time. h	′	″	Difference in Degrees d	′	″	Latit. d	′
Pike of Tenerife	1	04	19W	16	04	45	28	30
Poiters	0	01	21E	00	20	15	46	34
Portobello in America	5	18	59W	79	44	45	09	33
Quanton in China	7	32	34E	13	08	30	23	08
Ratiſbon	0	50	05E	12	31	15	48	59
Ravena	0	48	51E	12	12	45	44	25
Rhodes	1	53	58E	28	29	30	36	43
Richmond	0	06	00W	01	30	00	54	26
Rocheſter	0	02	00E	00	30	00	51	26
Rochel	0	03	52W	00	58	00	46	10
Rome	0	51	01E	12	45	15	41	54
Roan	0	04	41E	01	10	15	49	27
Rotterdam	0	15	00E	03	45	00	51	55
Salamanca	0	24	00W	06	00	00	41	12
Salonica	1	32	53E	23	13	15	40	41
Sens in Champagne	0	13	17E	03	19	15	48	11
Sevil in Spain	0	26	20W	06	35	00	37	36
Shrewſbury	0	11	00W	02	45	00	52	48
Siam	6	43	41E	100	55	15	14	18
Smirna	1	49	20E	27	20	00	38	28
Stafford	0	09	00W	02	15	00	52	54
Stamford	0	02	00W	00	30	00	52	41
Straſbourg	0	31	21E	07	50	15	48	35
Stetin	0	58	00E	14	30	00	53	36
Stockholm	1	14	41E	18	40	15	59	30
Surat	4	49	41E	72	25	15	21	10
Syrracuſe	1	01	20E	15	20	00	37	04
Toledo	0	16	00W	04	00	00	39	54
Toulon	0	24	03E	06	00	45	43	07
Tolouſe	0	06	01E	01	30	15	43	37
Tours	0	03	01E	00	45	15	47	23
Tripoly	0	52	20E	13	05	00	32	54
Troyes in Champagne	0	16	21E	04	05	14	48	15
Tubing	0	38	00E	09	30	00	48	34
Turin	0	30	21E	07	35	15	44	50

Valen-

Places Names.	Difference in Time.			Difference in Degrees			Latit.	
	h	'	"	d	'	"	d	'
Valentia	0	03	20E	00	50	00	39	30
Varſovia	1	26	41E	21	40	15	52	14
Venice	0	51	01E	12	45	15	45	35
Vienna	1	07	51E	16	57	45	48	14
Vilna	1	50	00E	27	30	00	54	30
Upſal	1	12	20E	18	05	00	59	00
Uroniberg	0	51	20E	12	50	00	55	54
Utricht	0	20	20E	05	05	00	52	05
Warwick	0	06	00W	01	30	00	52	25
Worceſter	0	09	00W	02	15	00	52	20
Wittemberg	0	52	20E	13	05	00	51	53
Yarmouth	0	06	00E	01	30	00	52	55
York	0	04	00W	01	00	00	54	00
Ylo in Peru	4	44	31W	71	07	45	17	36S

The difference of longitude between any two meridians is an arch of the equator, (or of a circle parallel to the equator) comprehended between thoſe two meridians; and may be expreſſed either by degrees and minutes of a circle, or by hours, and minutes, and ſeconds of time. For the time the Sun takes up in the ſame day, in paſſing from one meridian to another, hath the ſame proportion to 24 hours as the arch comprehended between thoſe two meridians, hath to 360 degrees, or to a whole circle. Thus for example, if a place be 15 degrees to the Eaſtward of London, it will be one o'clock there, when the Sun comes to the meridian of London, Note, the moſt part of our modern Geographers compute their longitude of places from the meridian of the iſle of Faro, the moſt weſterly of the Canary Iſlands, counting from Weſt to Eaſt, from 1 to 360 degrees. The time of the day being known at London, to find the hour in any other propoſed place, do thus: Find the place propoſed in the table, and mark down the difference of meridians in time; if the place propoſed be to the eaſtward of London, add the difference of the meridian to the time at London, the ſum will be the hour at the place propoſed. But if the place propoſed be to the W. of London, ſubſtract the difference marked in the tables, from the hour at London, the remainder will be the hour at the place propoſed. Example, what is the hour at Venice, when it is 6 o'clock at London? Venice is to the Eaſt from London, and is marked in the table 51' 01'' E. therefore the hour at Venice is 51' 10'' after 6. The hour being 6 in the morning at London, what is the hour at Port Royal in Jamaica? Seek Jamaica in the table, and againſt it ſtands 5h. 04' 00'' W. Port Royal being to the Weſt

Weſt from London, ſubſtract 5h 04' from 6h, there remains 56', ſo that the hour at Jamaica is 56' after midnight. It being 35' 37'' after 9 at night at Paris, what is the hour at Dublin? Againſt Paris ſtands 9' 41''E. and againſt Dublin ſtands 27' 00''W. ſo that Dublin is 36' 41'' to the Weſt from Paris, which ſubſtracted from 9h. 35' 37'' the time at Paris, leaves 8h. 58' 56'' the time of the night at Dublin. Again, it being 56' 12'' after 10 in the morning at Paris, what is the hour at Conſtantinople? Againſt Paris ſtands 9' 41''E. againſt Conſtantinople ſtands 1h 55' 55''E. ſo that Conſtantinople is 1h 46' 14'' to the Eaſt from Paris. Therefore 1h 46' 14'' being added to (the time at Paris) 10h 56' 12'' makes 12h 42' 26'', which is the time of the Day at Conſtantinople.

A Table ſhewing the length of the longeſt artificial day, in all places from the Equinoctial, to the Poles of the World.

Height Pole.	Longeſt day Ho.	Longeſt day Min.	Height Pole.	Longeſt day Ho.	Longeſt day Min	Height Pole.	Longeſt day. Day	Longeſt day. Ho.	Longeſt day. Min.
0	12	0	47	15	42	68	42	1	16
6	12	20	48	15	52	69	54	16	25
12	12	42	49	16	0	70	64	13	46
16	12	58	50	16	10	71	74	0	0
20	13	12	51	16	20	72	82	6	36
24	13	30	52	16	30	73	89	4	58
27	13	42	53	16	42	74	96	17	0
30	13	56	54	16	54	75	104	1	4
32	14	6	55	17	8	76	110	7	27
34	14	16	56	17	22	77	116	14	22
35	14	22	57	17	36	78	122	17	6
36	14	28	58	17	52	79	127	9	55
37	14	34	59	18	10	80	134	4	58
38	14	38	60	18	30	81	139	31	36
39	14	44	61	18	54	82	145	6	43
40	14	52	62	19	20	83	152	2	6
41	14	58	63	19	50	84	156	3	3
42	15	4	64	20	24	45	161	5	23
43	15	12	65	21	10	86	166	11	23
44	15	18	66	22	18	87	171	21	47
45	15	26	66½	24	0	88	176	5	29
46	15	34	67	24Days		89	181	21	58
						90	187	6	39

TABLES for converting mean Solar Time into Degrees and Parts of the Terreſtrial Equator; and alſo for converting Degrees and Parts of the Equator into mean Solar Time.

Table I. for converting Time into Degrees and Parts of the Equator.

Table II. for converting Degrees and Parts of the Equator into Time.

Hours	Degrees.	*Min.	Deg.	Min.	*Min.	Deg.	Min.	*Deg.	Hours.	Min.	*Deg.	Hours	Min.	Degrees.	Hours.	Minutes.
		Sec.	Min.	Sec.	Sec.	Min.	Sec.	Min.	Min.	Sec.	Min.	Min.	Sec.			
		Thirds.	Sec.	Thirds.	Thirds.	Sec.	Thirds.	Sec.	Sec.	Thirds	Sec.	Sec.	Thirds.			
1	15	1	0	15	31	7	45	1	0	4	31	2	4	70	4	40
2	30	2	0	30	32	8	0	2	0	8	32	2	8	80	5	20
3	45	3	0	45	33	8	15	3	0	12	33	2	12	90	6	0
4	60	4	1	0	34	8	30	4	0	16	34	2	16	100	6	40
5	75	5	1	15	35	8	45	5	0	20	35	2	20	110	7	20
6	90	6	1	30	36	9	0	6	0	24	36	2	24	120	8	0
7	105	7	1	45	37	9	15	7	0	28	37	2	28	130	8	40
8	120	8	2	0	38	9	30	8	0	32	38	2	32	140	9	20
9	135	9	2	15	39	9	45	9	0	36	39	2	36	150	10	0
10	150	10	2	30	40	10	0	10	0	40	40	2	40	160	10	40
11	165	11	2	45	41	10	15	11	0	44	41	2	44	170	11	20
12	180	12	3	0	42	10	30	12	0	48	42	2	48	180	12	0
13	195	13	3	15	43	10	45	13	0	52	43	2	52	190	12	40
14	210	14	3	30	44	11	0	14	0	56	44	2	56	200	13	20
15	225	15	3	45	45	11	15	15	1	0	45	3	0	210	14	0
16	240	16	4	0	46	11	30	16	1	4	46	3	4	220	14	40
17	255	17	4	15	47	11	45	17	1	8	47	3	8	230	15	20
18	270	18	4	30	48	12	0	18	1	12	48	3	12	240	16	0
19	285	19	4	45	49	12	15	19	1	16	49	3	16	250	16	40
20	300	20	5	0	50	12	30	20	1	20	50	3	20	260	17	20
21	315	21	5	15	51	12	45	21	1	24	51	3	24	270	18	0
22	330	22	5	30	52	13	0	22	1	28	52	3	28	280	18	40
23	345	23	5	45	53	13	15	23	1	32	53	3	32	290	19	20
24	360	24	6	0	54	13	30	24	1	36	54	3	36	300	20	0
25	375	25	6	15	55	13	45	25	1	40	55	3	40	310	20	40
26	390	26	6	30	56	14	0	26	1	44	56	3	44	320	21	20
27	405	27	6	45	57	14	15	27	1	48	57	3	48	330	22	0
28	420	28	7	0	58	14	30	28	1	52	58	3	52	340	22	40
29	435	29	7	15	59	14	45	29	1	56	59	3	56	350	23	20
30	450	30	7	30	60	15	0	30	2	0	60	4	0	360	24	0

TABLES

OF

ASCENSIONAL DIFFERENCE

FOR FINDING THE

OBLIQUE ASCENSION or DESCENSION

FOR ANY

DEGREE OF LATITUDE.

The uſe of the following Tables are thus:

SEEK the Elevation of the Pole, viz. the latitude of the place it is wanted for, on the Head of the Table. Then with the Declination of your Planet, enter the firſt Column on the left hand, and in the common angle of meeting, you have the Aſcenſional Difference, which muſt be ſubſtracted from the Planet's Right Aſcenſion, if in Northern ſigns, and you have the Planet's Oblique Aſcenſion; but if you add it, you have its Oblique Deſcenſion. If the Planets ſhould be in a Southern ſign, you muſt add the Planet's Right Aſcenſion and Aſcenſional Difference together, and you have the Oblique Aſcenſion; but if ſubſtracted, you have the Oblique Deſcenſion.

Stars Declinations.

Ele. Poli.	1		2		3		4		5		6		7		8		9		10	
D.	d.m.		d	m	d	m	d	m	d	m	d	m	d	m	d	m	d	m	d	m
1	0	1	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	11
2	0	2	0	4	0	6	0	8	0	10	0	13	0	15	0	17	0	19	0	21
3	0	3	0	6	0	9	0	13	0	16	0	19	0	22	0	25	0	29	0	32
4	0	4	0	8	0	13	0	17	0	21	0	25	0	30	0	34	0	38	0	42
5	0	5	0	10	0	16	0	21	0	26	0	32	0	37	0	42	0	48	0	53
6	0	6	0	13	0	19	0	25	0	32	0	38	0	44	0	51	0	57	1	4
7	0	7	0	15	0	22	0	30	0	37	0	44	0	52	0	59	1	7	1	14
8	0	8	0	17	0	25	0	34	0	42	0	51	0	59	1	8	1	16	1	25
9	0	9	0	19	0	29	0	38	0	48	0	57	1	7	1	16	1	26	1	36
10	0	11	0	21	0	32	0	42	0	53	1	4	1	14	1	25	1	36	1	47
11	0	12	0	23	0	35	0	47	0	58	1	10	1	22	1	34	1	46	1	58
12	0	13	0	25	0	38	0	51	1	4	1	17	1	30	1	43	1	56	2	9
13	0	14	0	28	0	42	0	56	1	9	1	23	1	37	1	52	2	6	2	20
14	0	15	0	30	0	45	1	0	1	15	1	30	1	45	2	1	2	16	2	31
15	0	16	0	32	0	48	1	4	1	21	1	37	1	53	2	10	2	26	2	42
16	0	17	0	34	0	52	1	9	1	26	1	44	2	1	2	19	2	36	2	54
17	0	18	0	37	0	55	1	14	1	32	1	50	2	9	2	28	2	47	3	5
18	0	19	0	39	0	59	1	18	1	38	1	57	2	17	2	37	2	57	3	17
19	0	21	0	41	1	2	1	23	1	44	2	4	2	25	2	46	3	8	3	29
20	0	22	0	44	1	6	1	27	1	49	2	12	2	34	2	56	3	18	3	41
21	0	23	0	46	1	9	1	32	1	55	2	19	2	41	3	6	3	29	3	53
22	0	24	0	49	1	13	1	37	2	2	2	26	2	50	3	15	3	40	4	5
23	0	25	0	51	1	17	1	42	2	8	2	33	2	59	3	25	3	51	4	18
24	0	27	0	53	1	20	1	47	2	14	2	31	3	9	3	35	4	3	4	30
25	0	28	0	56	1	24	1	52	2	20	2	49	3	17	3	45	4	14	4	43
26	0	29	0	59	1	28	1	57	2	27	2	56	3	26	3	56	4	26	4	56
27	0	31	1	1	1	32	2	3	2	33	3	4	3	35	4	6	4	38	5	9
28	0	32	1	4	1	36	2	8	2	40	3	12	3	45	4	17	4	50	5	23
29	0	33	1	7	1	40	2	13	2	47	3	20	3	54	4	28	5	2	5	37
30	0	35	1	9	1	44	2	19	2	54	3	29	4	4	4	39	5	15	5	51
31	0	36	1	12	1	48	2	24	3	1	3	37	4	14	4	51	5	28	6	5
32	0	37	0	15	1	53	2	30	3	8	3	46	4	24	5	2	5	41	6	20

TABLES OF ASCENSIONAL DIFFERENCE.

Stars Declinations.

Ele. Poli.	1		2		3		4		5		6		7		8		9		10	
d	d	m	d	m	d	m	d	m	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.
33	0	39	1	18	1	57	2	36	3	15	3	55	4	34	5	14	5	54	6	35
34	0	40	1	21	2	2	2	42	3	23	4	4	4	45	5	26	6	8	6	50
35	0	42	1	24	2	6	2	48	3	31	4	13	4	56	5	39	6	22	7	6
36	0	44	1	27	2	11	2	55	3	39	4	23	5	7	5	52	6	36	7	22
37	0	45	1	30	2	16	3	2	3	47	4	33	5	11	6	5	6	51	7	38
38	0	47	1	34	2	21	3	8	3	55	4	45	5	30	6	18	7	6	7	55
39	0	49	1	37	2	26	3	15	4	4	4	53	5	42	6	32	7	22	8	13
40	0	50	1	41	2	31	3	22	4	13	5	4	5	55	6	46	7	38	8	31
41	0	52	1	44	2	37	3	29	4	22	5	15	6	8	7	1	7	55	8	49
42	0	54	1	48	2	42	3	37	4	31	5	26	6	21	7	16	8	12	9	8
43	0	56	1	52	2	48	3	44	4	41	5	38	6	34	7	32	8	30	9	28
44	0	58	1	56	2	54	3	52	4	51	5	50	6	49	7	48	8	48	9	48
45	1	0	2	0	3	0	4	1	5	1	6	2	7	3	8	5	9	7	10	9
46	1	2	2	4	3	7	4	9	5	12	6	15	7	18	8	22	9	29	10	31
47	1	4	2	9	3	13	4	18	5	23	6	28	7	34	8	40	9	47	10	54
48	1	7	2	13	3	20	4	27	5	35	6	42	7	50	8	59	10	8	11	18
49	1	9	2	18	3	27	4	37	5	47	6	57	8	7	9	19	10	30	11	42
50	1	12	2	23	3	35	4	47	5	59	7	11	8	25	9	39	10	53	12	8
51	1	14	2	28	3	43	4	57	6	12	7	27	8	43	10	0	11	17	12	35
52	1	17	2	34	3	51	5	8	6	26	7	44	9	3	10	22	11	42	13	3
53	1	20	2	39	3	59	5	19	6	40	8	1	9	23	10	45	12	8	13	32
54	1	23	2	45	4	8	5	31	6	55	8	19	9	44	11	9	12	35	14	3
55	1	26	2	52	4	18	5	44	7	11	8	38	10	6	11	35	13	4	14	35
56	1	29	2	58	4	27	5	57	7	27	8	58	10	29	12	2	13	35	15	9
57	1	32	3	5	4	38	6	11	7	44	9	19	10	54	12	30	14	7	15	45
58	1	36	3	12	4	49	6	26	8	2	9	41	11	20	13	0	14	41	16	23
59	1	40	3	20	5	0	6	41	8	22	10	4	11	48	13	32	15	17	17	4
60	1	44	3	28	5	12	6	57	8	43	10	29	12	17	14	5	15	55	17	47
61	1	48	3	37	5	25	7	15	9	5	10	56	12	48	14	45	16	36	18	33
62	1	53	3	46	5	39	7	33	9	28	11	24	13	21	15	20	17	20	19	22
63	1	58	3	56	5	54	7	53	9	53	11	54	13	57	16	1	18	7	20	15
64	2	3	4	6	6	10	8	15	10	20	12	27	14	55	16	45	18	57	21	21

Stars Declinations.

Ele. Poli.	1		2		3		4		5		6		7		8		9		10	
d	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	c.	m.	d.	m.	d.	m.	d.	m.
64	2	9	4	18	6	27	8	37	10	49	13	2	15	16	17	32	19	51	22	13
65	2	15	4	30	6	46	9	2	11	20	13	39	16	1	18	24	20	50	23	20
67	2	21	4	33	7	6	9	29	11	55	14	20	16	49	19	20	21	55	24	33
68	2	29	4	57	7	27	9	58	12	30	15	5	17	42	20	21	23	5	25	53
69	2	36	5	13	7	51	10	30	13	10	15	53	18	39	21	29	24	23	27	21
70	2	45	5	30	8	17	11	5	13	55	16	47	19	43	22	43	25	48	28	59
71	2	54	5	49	8	45	11	43	14	43	17	46	20	53	24	5	27	13	30	48
72	3	5	6	10	9	17	12	26	15	37	18	52	22	12	25	38	29	10	32	52
73	3	16	6	34	9	52	13	13	16	38	20	6	23	41	27	22	31	12	35	13
74	3	29	7	0	10	32	14	7	17	46	21	30	25	21	29	21	33	32	37	56
75	3	44	7	29	11	17	15	8	19	3	23	6	27	10	31	38	36	14	41	9
76	4	1	8	3	12	8	16	17	20	33	24	56	29	38	34	19	39	26	45	1
77	4	20	8	42	13	7	17	38	22	16	27	5	32	8	37	30	43	19	40	48
78	4	43	9	27	14	16	19	12	24	18	29	38	35	17	41	23	48	10	56	3
79	5	9	10	21	15	38	21	4	26	45	32	44	39	10	46	18	54	34	65	7
80	5	41	11	25	17	17	23	22	29	45	36	35	44	8	52	51	63	55	90	0
81	6	19	12	44	19	19	26	12	33	32	41	35	50	50	62	33	90	0		
82	7	8	14	23	21	54	29	50	38	30	48	24	60	33	90	0				
83	8	10	16	31	25	16	34	43	45	27	58	52	90	0						
84	9	34	19	24	29	55	41	42	56	21	90	0								
85	11	31	23	31	36	49	53	0	90	0										
86	14	27	30	58	48	23	90	0												
87	19	27	41	47	90	0														
88	36	51	90	0																
89	90	0																		
90																				

Stars Declinations.

Ele. Poli.	11		12		13		14		15		16		17		18		19		20	
d	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m.	d.	m
1	0	12	0	13	0	14	0	15	0	16	0	17	0	18	0	19	0	21	0	2
2	0	23	0	25	0	28	0	30	0	32	0	34	0	37	0	39	0	42	0	4
3	0	35	0	38	0	42	0	45	0	48	0	52	0	54	0	59	1	2	1	
4	0	47	0	51	0	56	1	0	1	4	1	9	1	14	1	18	1	23	1	2
5	0	58	1	4	1	9	1	15	1	21	1	26	1	32	1	38	1	44	1	4
6	1	10	1	17	1	23	1	30	1	37	1	44	1	50	1	57	2	4	2	12
7	1	22	1	30	1	37	1	45	1	53	2	1	2	9	2	17	2	25	2	34
8	1	35	1	43	1	52	2	0	2	9	2	19	2	28	2	37	2	46	2	56
9	1	46	1	56	2	6	2	16	2	26	2	36	2	47	2	57	3	8	3	18
10	1	58	2	9	2	20	2	31	2	42	2	54	3	5	3	17	3	20	3	41
11	2	10	2	22	2	34	2	47	2	59	3	12	3	24	3	37	3	50	4	3
12	2	22	2	35	2	49	3	2	3	16	3	30	3	44	3	58	4	12	4	26
13	2	34	2	49	3	3	3	18	3	33	3	48	4	3	4	18	4	34	4	49
14	2	47	3	2	3	18	3	34	3	50	4	6	4	22	4	39	4	56	5	12
15	2	59	3	16	3	33	3	50	4	7	4	24	4	42	5	0	5	18	5	36
16	3	12	3	30	3	48	4	6	4	24	4	43	5	2	5	21	5	40	5	59
17	3	24	3	44	4	3	4	22	4	42	5	2	5	22	5	42	6	22	6	23
18	3	37	3	58	4	18	4	39	5	0	5	21	5	42	6	4	6	25	6	47
19	3	50	4	12	4	34	4	55	5	18	5	40	6	3	6	26	6	49	7	12
20	4	3	4	26	4	49	5	12	5	36	5	59	6	24	6	48	7	12	7	37
21	4	17	4	41	5	5	5	30	5	54	6	19	6	45	7	10	7	36	8	2
22	4	30	4	56	5	21	5	47	6	13	6	39	7	6	7	33	8	0	8	27
23	4	44	5	11	5	37	6	5	6	32	6	59	7	27	7	56	8	24	8	53
24	4	58	5	26	5	54	6	23	6	51	7	20	7	49	8	19	8	49	9	19
25	5	12	5	41	6	11	6	41	7	11	7	41	8	12	8	43	9	14	9	46
26	5	26	5	57	6	28	6	59	7	31	8	2	8	35	9	7	9	40	10	14
27	5	41	6	13	6	45	7	18	7	51	8	24	8	58	9	32	10	6	10	41
28	5	56	6	29	7	3	7	37	8	11	8	46	9	21	9	57	10	33	11	9
29	6	11	6	46	7	21	7	57	8	32	9	9	9	45	10	23	11	0	11	38
30	6	27	7	3	7	40	8	17	8	54	9	32	10	10	10	49	11	28	12	8
31	6	42	7	20	7	59	8	37	9	16	9	55	10	35	11	16	11	56	12	38
32	6	59	7	38	8	18	7	58	9	38	10	19	11	1	11	43	12	25	13	9

Eli. Poli.	11		12		13		14		15		16		17		18		19		20	
D.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
33	7	15	7	56	8	37	9	19	10	1	10	44	11	27	12	11	12	55	13	40
34	7	32	8	15	8	57	9	41	10	25	11	9	11	54	12	40	13	26	14	13
35	7	49	8	34	9	18	10	3	10	49	11	35	12	22	13	9	13	57	14	46
36	8	7	8	53	9	39	10	26	11	13	12	1	12	50	13	39	14	29	15	20
37	8	25	9	13	10	1	10	50	11	39	12	29	13	10	14	10	15	2	15	55
38	8	44	9	34	10	23	11	14	12	5	12	57	13	49	14	42	15	36	16	31
39	9	3	9	55	10	46	11	39	12	32	13	26	14	20	15	15	16	11	17	8
40	9	23	10	16	11	10	12	5	13	0	13	55	14	51	15	49	16	48	17	47
41	9	44	10	39	11	35	12	31	13	28	14	26	15	25	16	24	17	25	18	27
42	10	5	11	2	12	0	12	58	13	58	14	58	15	59	17	1	18	4	19	8
43	10	27	11	26	12	26	13	27	14	28	15	31	16	34	17	38	18	44	19	50
44	10	49	11	51	12	53	13	56	15	0	16	5	17	10	18	17	19	25	20	35
45	11	13	12	16	13	21	14	28	15	33	16	40	17	48	18	58	20	8	21	21
46	11	37	12	43	13	50	14	58	16	7	17	10	18	27	19	40	20	53	22	9
47	12	2	13	11	14	20	15	30	16	42	17	54	19	8	20	23	21	40	22	58
48	12	28	13	39	14	51	16	5	17	19	18	34	19	51	21	9	22	29	23	51
49	12	55	14	9	15	24	16	40	17	57	19	16	20	36	21	57	23	20	24	45
50	13	24	14	40	15	58	17	17	18	37	19	59	21	22	22	47	24	15	25	42
51	13	53	15	13	16	34	17	56	19	19	20	44	22	11	23	39	25	10	16	43
52	14	24	15	47	17	11	18	37	20	3	21	32	23	2	24	34	26	9	27	45
53	14	57	16	23	17	50	19	19	20	50	22	26	23	56	25	35	27	11	28	53
54	15	31	17	1	18	32	20	4	21	38	23	15	24	53	26	34	28	17	30	4
55	16	7	17	40	19	15	20	52	22	30	24	10	25	53	27	39	29	27	31	19
56	16	45	18	22	20	1	21	42	23	24	25	9	26	57	28	40	30	42	32	39
57	17	25	19	6	20	49	22	35	24	22	26	12	28	5	30	1	32	1	34	5
58	18	7	19	52	21	41	23	31	25	23	27	19	29	18	31	20	33	26	35	37
59	18	52	20	43	22	36	24	31	26	29	28	30	30	35	32	44	34	58	37	17
60	19	40	21	36	23	34	25	35	27	39	29	47	31	58	34	15	36	37	39	5
61	20	32	22	23	24	37	26	44	28	54	31	9	33	28	35	53	38	24	41	3
62	21	27	23	34	25	44	27	58	30	16	32	38	35	6	37	40	40	22	43	12
63	22	26	24	39	26	57	29	18	31	44	34	15	36	52	39	37	42	34	45	35
64	23	29	25	50	28	15	30	45	33	19	36	1	38	49	41	46	44	54	48	16

Stars Declinat.ons

Eli. Poil.	11		12		13		14		15		16		17		18		19		20	
D.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M,	D.	
65	24	38	27	7	29	41	32	10	35	4	37	56	40	58	44	10	47	36	51	
66	25	53	28	31	31	14	34	3	37	0	40	6	43	22	46	52	50	39	54	
67	27	15	30	3	32	57	35	58	39	8	42	30	46	4	49	56	54	13	59	
68	28	45	31	45	24	51	38	6	41	33	45	13	49	10	53	52	58	7	64	
69	30	25	33	37	36	58	40	30	44	16	48	20	52	48	57	50	63	47	71	
70	32	13	35	44	39	22	43	14	47	24	5[illegible]	59	57	8	63	13	73	5	90	
71	24	22	38	7	42	6	46	23	51	6	56	23	62	37	70	40	90	0		
72	36	45	40	51	45	17	50	7	55	33	61	57	70	12	90	0				
73	39	29	44	3	49	2	54	38	61	13	69	42	90	0						
74	42	41	47	50	53	37	60	17	69	8	90	0								
75	46	30	52	30	59	30	68	31	90	0										
76	51	14	58	29	67	49	90	0												
77	57	21	67	2	90	0														
78	66	8	90	0																
79	90	0																		
80																				
81																				
82																				
83																				
84																				
85																				
86																				
87																				
88																				
89																				
90																				

TABL

Stars Declinations.

Eli. Poli.	21		22		23		24		25		26		27		28		29		30	
D	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
1	0	23	0	24	0	25	0	27	0	28	0	29	0	31	0	32	0	33	0	35
2	0	46	0	49	0	51	0	53	0	56	0	59	1	1	1	4	1	7	1	9
3	1	9	1	13	1	17	1	20	1	24	1	28	1	32	1	36	1	40	1	44
4	1	32	1	37	1	42	1	47	1	52	1	57	2	3	2	8	2	13	2	19
5	1	55	2	2	2	8	2	14	2	20	2	27	2	33	2	40	2	47	2	54
6	2	19	2	26	2	33	2	41	2	49	2	56	3	4	3	12	3	20	3	29
7	2	42	2	51	2	59	3	8	3	17	3	26	3	35	3	45	3	54	4	4
8	3	6	3	15	3	25	3	35	3	45	3	56	4	6	4	17	4	28	4	39
9	3	29	3	40	3	51	4	3	4	14	4	26	4	38	4	50	5	2	5	15
10	3	53	4	5	4	18	4	30	4	53	4	56	5	9	5	23	5	38	5	51
11	4	17	4	30	4	44	4	58	5	12	5	26	5	41	5	56	6	11	6	27
12	4	41	4	56	5	11	5	26	5	41	5	57	6	13	6	29	6	46	7	3
13	5	5	5	21	5	38	5	54	6	11	6	28	6	45	7	3	7	21	7	40
14	5	30	5	47	6	5	6	22	6	41	6	59	7	18	7	37	7	56	8	17
15	5	54	6	13	6	32	6	51	7	11	7	31	7	51	8	11	8	32	8	54
16	6	19	6	39	6	59	7	20	7	41	8	3	8	24	8	46	9	8	9	32
17	6	44	7	6	7	27	7	49	8	12	8	35	8	58	9	21	9	45	10	10
18	7	10	7	33	7	56	8	19	8	43	9	7	9	32	9	56	10	23	10	49
19	7	36	8	0	8	24	8	49	9	14	9	40	10	6	10	33	11	0	11	28
20	8	2	8	27	8	53	9	19	9	46	10	14	10	41	11	9	11	38	12	8
21	8	28	8	55	9	23	9	50	10	19	10	47	11	17	11	46	12	17	12	48
22	8	55	9	24	9	53	10	22	10	52	11	22	11	53	12	24	12	56	13	29
23	9	22	9	53	10	23	10	54	11	25	11	57	12	29	13	3	13	37	14	11
24	9	50	10	22	10	54	11	26	11	59	12	33	13	7	13	42	14	17	14	54
25	10	19	10	52	11	25	11	59	12	34	13	9	13	45	14	21	14	59	15	37
26	10	47	11	22	11	57	12	33	13	9	13	46	14	24	15	2	15	41	16	21
27	11	17	11	53	12	29	13	7	13	45	14	23	15	3	15	43	16	24	17	6
28	11	47	12	24	13	3	13	42	14	21	15	2	15	43	16	25	17	8	17	53
29	12	17	12	56	13	37	14	18	14	59	15	41	16	24	17	3	17	54	18	40
30	12	48	13	29	14	11	14	54	15	37	16	21	17	6	17	53	18	40	19	28
31	13	20	14	3	14	47	15	31	16	16	17	2	17	50	18	38	19	27	20	18
32	13	53	14	37	15	23	16	9	16	56	17	45	18	34	19	24	20	16	21	9

Stars Declinations.

Eli. Poli.	21		22		23		24		25		26		27		28		29		30	
D.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
33	14	26	15	13	16	0	16	48	17	38	18	27	19	20	20	12	21	26	22	1
34	15	0	15	49	16	38	17	29	18	20	19	12	20	6	21	1	21	57	22	55
35	15	36	16	26	17	17	18	10	19	3	19	58	20	54	21	51	22	50	23	51
36	16	12	17	4	17	58	18	53	19	48	20	45	21	44	22	44	23	45	24	48
37	16	49	17	44	18	39	19	36	20	34	21	34	22	25	23	37	24	41	25	47
38	17	27	18	24	19	22	20	21	21	22	22	24	23	28	24	33	25	40	26	49
39	18	6	19	6	20	6	21	8	22	11	23	16	24	22	25	30	26	40	27	52
40	18	47	19	49	20	52	21	56	23	2	24	9	25	19	26	30	27	43	28	59
41	19	30	20	34	21	39	22	46	23	55	25	5	26	17	27	32	28	48	30	7
42	20	13	21	20	22	28	23	38	24	50	26	3	27	18	28	36	29	56	31	19
43	20	59	22	8	23	19	24	32	25	46	27	3	28	22	29	43	31	7	32	34
44	21	45	22	58	24	12	25	20	26	45	28	6	29	28	30	54	32	22	33	53
45	22	34	23	50	25	7	26	26	27	48	29	11	30	38	32	7	33	40	35	16
46	23	26	24	44	26	5	27	27	28	52	30	20	31	51	33	24	35	2	36	44
47	24	18	25	41	27	5	28	31	30	0	31	32	33	7	34	46	36	28	38	15
48	25	14	26	40	28	8	29	38	31	11	32	47	34	28	36	11	38	0	39	53
49	26	12	27	42	29	14	30	49	32	26	34	8	35	53	37	53	39	39	41	37
50	27	13	28	47	30	23	32	3	33	46	35	33	37	23	39	19	41	21	43	29
51	28	17	29	56	31	37	33	21	35	9	37	2	38	59	41	1	44	11	45	29
52	29	26	31	8	32	54	34	44	36	39	38	38	40	42	42	53	45	12	47	39
53	30	37	32	25	34	17	36	13	38	14	40	20	42	33	44	53	47	21	50	1
54	31	54	33	47	35	45	37	48	39	46	42	10	44	32	47	2	49	43	52	37
55	33	14	35	14	37	19	39	29	41	45	44	0	46	41	49	35	52	20	55	33
56	34	41	36	48	38	59	41	18	43	44	46	19	49	4	52	2	55	16	58	52
57	36	14	38	28	40	49	43	17	45	53	48	40	51	41	54	58	58	36	62	45
58	37	54	40	17	42	47	45	27	47	16	51	19	54	37	58	19	62	30	67	31
59	39	40	42	16	44	57	47	49	50	54	54	16	58	0	62	14	67	18	73	35
60	41	50	44	25	47	19	50	27	53	52	57	39	61	57	67	24	73	46	90	0
61	43	50	46	48	49	59	53	26	57	36	61	38	66	49	73	35	90	0		
62	46	12	49	27	52	58	56	52	61	17	66	32	73	23	90	0				
63	48	53	52	28	56	25	60	54	66	14	73	11	90	0						
64	51	55	55	55	60	29	65	54	72	57	90	0								

Stars Declinations

Eli. Poll.	21		22		23		24		25		26		27		28		29		30	
D.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M,	D.	M.
65	55	23	60	3	65	21	72	42	90	0										
66	59	34	65	9	72	26	90	0												
67	64	44	72	8	90	0														
68	71	49	90	0																
69	90	0																		
70																				
71																				
72																				
73																				
74																				
75																				
76																				
77																				
78																				
79																				
80																				
81																				
82																				
83																				
84																				
85																				
86																				
87																				
88																				
89																				
90																				

Ele. Poli.	31		32		33		34		35		36		37		38		39		40	
d	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
1	0	36	0	37	0	39	0	40	0	42	0	44	0	45	0	47	0	49	0	50
2	1	12	1	15	1	18	1	21	1	24	1	27	1	31	1	34	1	37	1	41
3	1	48	1	53	1	57	2	2	2	6	2	11	2	16	2	21	2	26	2	31
4	2	24	2	30	2	36	2	42	2	48	2	55	3	1	3	8	3	15	3	22
5	3	1	3	8	3	15	3	23	3	31	3	39	3	47	3	55	4	4	4	13
6	3	37	3	46	3	55	4	3	4	13	4	23	4	33	4	43	4	53	5	4
7	4	14	4	24	4	34	4	45	4	56	5	7	5	19	5	30	5	42	5	55
8	4	51	5	2	5	14	5	26	5	39	5	52	6	5	6	18	6	32	6	46
9	5	28	5	41	5	54	6	8	6	22	6	37	6	51	7	6	7	22	7	38
10	6	5	6	20	6	35	6	50	7	9	7	22	7	38	7	55	8	13	8	30
11	6	42	6	59	7	15	7	32	7	49	8	7	8	25	8	44	9	3	9	23
12	7	20	7	38	7	56	8	15	8	34	8	53	9	13	9	34	9	55	10	16
13	7	58	8	18	8	37	8	58	9	18	9	39	10	1	10	24	10	46	11	10
14	8	37	8	58	9	19	9	41	10	3	10	26	10	50	11	14	11	39	12	4
15	9	16	5	38	10	1	10	25	10	49	11	14	11	39	12	5	12	32	13	0
16	9	55	10	19	10	44	11	9	11	35	12	2	12	29	12	57	13	26	13	55
17	10	35	11	1	11	27	11	54	12	22	12	50	13	19	13	49	14	20	14	52
18	11	16	11	43	12	11	12	40	13	9	13	39	14	10	14	42	15	15	15	49
19	11	56	12	26	12	55	13	26	13	57	14	29	15	2	15	36	16	11	16	48
20	12	38	13	9	13	40	14	13	14	46	15	20	15	55	16	31	17	8	17	47
21	13	20	13	53	14	26	15	0	15	36	16	12	16	49	17	27	18	7	18	47
22	14	3	14	37	15	13	15	49	16	27	17	5	17	44	18	24	19	6	19	49
23	14	47	15	23	16	0	16	38	17	17	17	58	18	39	19	22	20	6	20	52
24	15	51	16	9	16	48	17	29	18	10	18	52	19	36	20	21	21	8	21	56
25	16	16	16	56	17	38	18	20	19	3	19	48	20	34	21	21	22	11	23	1
26	17	2	17	45	18	28	19	12	19	58	20	45	21	34	22	24	23	16	24	10
27	17	50	18	34	19	19	20	6	20	54	21	44	22	35	23	28	24	22	25	19
28	18	38	19	24	20	12	21	1	21	51	22	44	23	37	24	33	25	30	26	30
29	19	27	20	16	21	6	21	57	22	50	23	45	24	41	25	40	26	40	27	43
30	28	18	21	9	22	1	22	55	23	51	24	48	25	47	26	49	27	52	28	59
31	21	10	22	3	22	58	23	55	24	53	25	53	26	55	28	0	29	7	30	17
32	22	3	22	59	23	56	24	56	25	57	27	0	28	5	29	13	30	24	31	37

Stars Declinations.

Ele. Poli.	31		32		33		34		35		36		37		38		39		40	
Stars Declinations. d	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
33	22	58	23	56	24	57	25	59	27	3	28	9	29	18	30	29	31	44	33	
34	23	55	24	56	25	59	27	4	28	11	29	21	30	32	31	48	33	6	34	28
35	24	53	25	57	27	3	28	11	29	22	30	35	31	50	33	10	34	33	35	59
36	25	53	27	0	28	9	29	21	30	35	31	52	33	12	34	36	36	2	37	33
37	26	55	28	5	29	18	30	32	31	50	33	12	34	32	36	4	37	36	39	13
38	28	0	29	13	30	29	31	48	33	10	34	36	36	4	37	37	39	15	40	58
39	29	7	30	23	31	44	33	6	34	33	36	2	37	36	39	15	40	59	42	49
40	30	17	31	37	33	1	34	28	35	59	37	33	39	13	40	58	42	49	44	45
41	31	29	32	54	34	22	35	53	37	30	39	10	40	55	42	47	44	45	46	50
42	32	45	34	15	35	47	37	23	39	5	40	52	42	44	44	42	46	49	49	4
43	34	5	35	38	37	16	38	59	40	46	42	39	44	39	46	46	49	2	51	20
44	35	28	37	7	38	50	40	39	42	33	44	33	46	42	48	59	51	27	54	8
45	36	56	38	40	40	30	42	25	44	26	46	36	48	54	51	22	54	4	57	3
46	38	29	40	19	42	16	44	18	46	29	48	48	51	17	54	0	56	57	60	20
47	40	7	42	4	44	8	46	20	48	40	51	11	53	55	56	48	60	16	64	8
48	41	52	43	57	46	9	48	31	51	3	53	48	56	49	60	11	64	4	68	44
49	43	44	45	47	48	20	50	53	53	40	56	42	60	6	64	0	68	41	74	52
50	45	43	48	8	50	43	53	30	56	34	59	59	63	46	68	36	74	49	90	0
51	47	54	50	30	53	19	56	24	59	51	63	48	68	31	74	45	90	0		
52	50	16	53	7	56	13	59	42	63	40	68	25	74	42	90	0				
53	52	53	56	1	59	31	63	31	68	19	74	37	90	0						
54	55	48	59	19	63	21	68	11	74	32	90	0								
55	59	6	63	10	68	2	74	26	90	0										
56	62	59	67	53	74	19	90	0												
57	67	42	74	12	90	0														
58	74	4	90	0																
59	90	0																		
60																				
61																				
62																				
63																				
64																				

Stars Declinations.

Ele. Poli.	41		42		43		44		45		46		47		48		49		50	
D.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
1	0	52	0	54	0	56	0	58	1	0	1	2	1	4	1	7	1	9	1	12
2	1	44	1	48	1	52	1	56	2	0	2	4	2	9	2	13	2	18	2	23
3	2	37	2	42	2	48	2	54	3	0	3	7	3	13	3	20	3	27	3	35
4	3	29	3	37	3	44	3	52	4	1	4	9	4	18	4	27	4	37	4	47
5	4	22	4	31	4	41	4	51	5	1	5	12	5	23	5	35	5	47	5	59
6	5	15	5	26	5	37	5	50	6	2	6	15	6	28	6	42	6	57	7	12
7	6	8	6	21	6	34	6	49	7	5	7	18	7	34	7	50	8	7	8	25
8	7	1	7	16	7	32	7	48	8	5	8	22	8	40	8	59	9	18	9	38
9	7	55	8	12	8	30	8	48	9	7	9	26	9	47	10	8	10	30	10	53
10	8	49	9	8	9	28	9	48	10	9	10	31	10	54	11	18	11	42	12	8
11	9	44	10	5	10	27	10	49	11	12	11	57	12	1	12	28	12	55	13	24
12	10	39	11	2	11	26	11	51	12	16	12	43	13	11	13	39	14	9	14	40
13	11	35	12	0	12	26	12	53	13	21	13	50	14	20	14	51	15	24	15	58
14	12	31	12	58	13	27	13	56	14	26	14	58	15	30	16	5	16	40	17	17
15	13	28	13	58	14	28	15	0	15	32	16	7	16	42	17	19	17	57	18	37
16	14	26	14	58	15	31	16	5	16	40	17	16	17	54	18	34	19	16	19	59
17	15	25	15	59	16	34	17	10	17	48	18	27	19	8	19	51	20	36	21	22
18	16	24	17	1	17	38	18	17	18	58	19	40	20	23	21	9	21	57	22	47
19	17	25	13	4	18	44	19	25	20	9	20	53	21	40	22	39	23	10	24	14
20	18	27	19	8	19	81	20	35	21	21	22	8	22	58	23	51	24	45	25	42
21	19	30	20	13	20	59	21	46	22	34	23	25	24	10	25	14	26	12	27	14
22	20	34	21	20	22	8	22	58	23	50	24	44	25	40	26	40	27	42	28	47
23	21	39	22	28	23	19	24	12	25	7	26	5	27	5	28	8	29	14	30	23
24	22	46	23	38	24	32	25	28	26	26	27	27	28	31	29	38	30	48	32	3
25	23	55	24	50	25	47	26	46	27	48	28	52	30	0	31	12	32	26	33	46
26	25	5	26	3	27	3	28	6	29	11	30	20	31	32	32	48	34	8	35	32
27	26	17	27	18	28	22	29	29	30	38	31	51	33	7	34	28	35	53	37	23
28	27	31	28	36	29	44	30	54	32	7	33	25	34	46	36	12	37	43	39	19
29	28	48	29	56	31	8	32	22	33	40	35	2	36	28	38	0	39	37	41	21
30	30	7	31	19	32	35	35	53	35	16	36	43	38	15	39	53	41	37	43	29
31	31	29	32	45	34	5	35	28	36	56	38	29	40	7	41	52	43	44	45	44
32	32	54	[illegible]	14	35	[illegible]	37	7	38	40	40	19	42	4	43	57	34	57	48	8

TABLE

Stars Declinations.

El. Poli.	41		42		43		44		45		46		47		48		49		50	
D.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
33	34	22	35	47	37	16	38	50	40	30	42	16	44	8	46	9	48	20	50	43
34	35	53	37	23	38	59	40	39	42	25	44	18	46	20	48	31	50	53	53	40
35	37	30	39	5	40	46	42	33	44	26	46	29	48	40	51	3	53	40	56	34
36	39	10	40	52	42	39	44	33	46	36	48	48	51	11	53	48	56	42	59	59
37	40	55	42	44	44	39	46	42	48	54	51	17	53	55	56	49	60	6	63	46
38	42	47	44	42	46	46	48	59	51	22	54	0	56	48	60	11	64	0	68	36
39	44	45	46	49	49	2	51	27	54	3	56	57	60	16	64	4	68	41	74	49
40	46	50	49	4	51	29	54	8	57	4	60	20	64	8	68	44	74	52	90	0
41	49	5	51	31	54	9	57	5	60	23	64	10	68	47	74	54	90	0		
42	51	31	54	10	57	6	60	24	64	13	68	49	74	55	90	0				
43	54	9	57	6	60	24	64	14	68	49	74	56	90	0						
44	57	5	60	24	64	14	68	50	74	57	90	0								
45	60	23	64	13	68	49	74	57	90	0										
46	64	10	68	39	74	56	90	0												
47	68	47	74	55	90	0														
48	74	54	90	1																
49	90	0																		
50																				
51																				
52																				
53																				
54																				
55																				
56																				
57																				
58																				
59																				
60																				
61																				
62																				
63																				
64																				

Stars Declinations.

Ele. Poli.	51		52		53		54		55		56		57		58		59		60	
D.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D,	M,
1	1	14	1	17	1	20	1	23	1	26	1	29	1	32	1	36	1	40	1	44
2	2	28	2	34	2	39	2	45	2	52	2	58	3	5	3	12	3	20	3	28
3	3	43	3	51	3	59	4	8	4	18	4	27	4	48	4	40	5	0	5	13
4	4	57	5	8	5	19	5	31	5	44	5	57	6	11	6	25	6	41	6	57
5	6	12	6	26	6	40	6	55	7	11	7	27	7	44	8	3	8	22	8	42
6	7	27	7	44	8	1	8	19	8	38	8	58	9	19	9	4	10	4	10	28
7	8	43	9	2	9	23	9	44	10	6	10	29	10	54	11	20	11	47	12	17
8	10	0	10	22	10	45	11	9	11	35	12	2	12	30	13	0	13	31	14	5
9	11	17	11	42	12	8	12	35	13	4	13	35	14	7	14	41	15	17	15	55
10	12	35	13	2	13	32	14	3	14	35	15	9	15	45	16	23	17	4	17	47
11	13	53	14	24	14	57	15	31	16	7	16	45	17	25	18	8	18	53	19	41
12	15	13	[illegible]	49	16	23	17	0	17	40	18	22	19	6	19	53	20	43	21	36
13	16	34	17	11	17	50	18	32	15	15	20	1	20	50	21	41	22	36	23	34
14	17	56	18	37	19	19	20	4	20	52	21	42	22	35	23	3	24	31	25	35
15	19	19	20	4	20	50	21	38	22	30	23	24	24	22	25	23	26	29	27	39
16	20	4	21	32	22	22	23	15	24	10	25	9	26	12	27	19	29	30	29	47
17	22	11	23	2	23	56	24	53	25	53	26	57	28	5	29	18	30	35	31	59
18	23	3	24	34	25	35	26	34	27	39	28	48	30	1	31	10	32	44	34	19
19	25	10	26	0	27	11	28	17	29	27	30	41	32	1	33	26	34	58	36	37
20	26	43	27	46	28	53	30	4	31	19	32	36	34	5	35	37	37	17	39	5
21	28	18	29	26	30	37	31	54	33	15	34	41	36	14	37	54	39	42	41	40
22	29	56	31	8	32	25	33	47	35	14	36	48	38	28	40	17	42	15	44	25
23	31	43	32	54	34	17	35	45	37	19	39	0	40	49	42	47	44	57	47	20
24	33	32	34	44	36	13	37	48	39	29	41	18	43	17	45	26	47	49	50	27
25	35	21	36	39	38	14	39	59	41	45	43	48	45	54	48	16	50	54	53	52
26	37	10	38	38	40	20	42	10	44	9	46	18	48	41	51	19	54	16	57	39
27	39	0	40	42	42	33	44	32	46	41	49	4	51	41	54	38	58	1	61	57
28	41	2	42	53	44	53	47	2	49	24	52	1	54	58	59	19	62	14	67	4
29	43	12	45	12	47	21	49	44	52	20	55	16	58	36	63	31	67	18	73	46
30	45	29	47	39	50	1	52	37	55	32	58	52	62	45	67	31	73	55	90	0
31	47	54	50	16	52	53	55	48	59	6	62	58	67	42	74	4	90	0		
32	50	30	53	7	56	1	59	19	63	10	67	53	71	12	90	0				

Stars Declinations

Eli. Poli.	51		52		53		54		55		56		57		58		59		60	
D.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M,	D.	M.
33	52	19	56	13	59	31	63	21	68	2	74	19	90	0						
34	56	24	59	42	63	31	68	11	74	26	90	0								
35	59	51	63	40	68	19	74	22	90	0										
36	63	48	68	65	74	37	90	0												
37	68	31	74	42	90	0														
38	74	45	90	0																
39	90	0																		
40																				
41																				
42																				
43																				
44																				
45																				
46																				
47																				
48																				
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TABLES OF THE POLES OF HOUSES ACCORDING TO PTOLEMY.

Latitude.	11 & 3 Ptole.		12 & 2 Ptole.		Latitude.	11 & 3 Ptole.		12 & 2 Ptole.	
D.	D.	M.	D.	M.	D.	D.	M.	D.	M.
1	0	20	0	40	31	11	25	21	58
2	0	40	1	19	32	11	52	22	47
3	1	0	1	59	33	12	19	23	35
4	1	19	1	40	34	12	48	24	24
5	1	38	3	20	35	13	17	25	13
6	1	57	4	0	36	13	46	26	4
7	2	19	4	41	37	14	17	26	55
8	2	39	5	22	38	14	49	27	46
9	2	59	6	3	39	15	20	28	38
10	3	21	6	43	40	15	52	29	33
11	3	42	7	24	41	16	25	30	25
12	4	4	8	5	42	16	59	31	22
13	4	24	8	45	43	17	36	32	16
14	4	44	9	26	44	18	13	33	13
15	5	5	10	8	45	18	50	34	11
16	5	27	10	49	46	19	28	35	9
17	5	49	11	31	47	20	7	36	8
18	6	11	12	13	48	20	49	37	8
19	6	33	12	56	49	21	33	48	10
20	6	55	13	39	50	22	17	39	11
21	7	17	14	22	51	23	4	40	16
22	7	41	15	5	52	23	51	41	20
23	8	55	15	49	53	24	40	42	26
24	8	29	16	34	54	25	34	43	32
25	8	53	17	19	55	26	29	44	41
26	9	11	18	4	56	27	25	45	51
27	9	43	18	50	57	28	24	47	0
28	10	8	19	35	58	29	26	48	13
29	10	34	20	22	59	30	30	49	26
30	11	0	21	9	60	31	39	50	42
	9 & 5		8 & 6			9 & 5		8 & 6	

ELEVATION.	39						40						41					POLE.
Degree	♈ ♎		Day ♉ Night ♏		♊ ♐		♈ ♎		Day ♉ Night ♏		♊ ♐		♈ ♎		Day ♉ Night ♏		♊ ♐		
	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	
0	15	0	16	28	17	40	15	0	16	38	18	0	15	0	16	42	18	7	30
1	15	3	16	31	17	43	15	3	16	41	18	2	15	3	16	46	18	9	29
2	15	7	16	35	17	45	15	7	16	45	18	4	15	7	16	49	18	11	28
3	15	10	16	38	17	47	15	10	16	48	18	6	15	11	16	52	18	13	27
4	15	12	16	40	17	49	15	13	16	51	18	8	15	14	16	55	18	15	26
5	15	15	16	43	17	51	15	17	16	54	18	10	15	18	16	58	18	17	25
6	15	17	16	45	17	53	15	20	16	57	18	12	15	21	17	1	18	19	24
7	15	20	16	48	17	54	15	23	17	0	18	14	15	24	17	4	18	21	23
8	15	24	16	50	17	55	15	27	17	3	18	16	15	28	17	8	18	23	22
9	15	27	16	53	17	57	15	30	17	7	18	18	15	31	17	11	18	25	21
10	15	30	16	55	17	58	15	33	17	10	18	19	15	35	17	14	18	26	20
11	15	33	16	58	17	59	15	37	17	13	18	20	15	38	17	17	18	28	19
12	15	36	17	0	18	0	15	40	17	16	18	21	15	41	17	20	18	29	18
13	15	39	17	3	18	1	15	43	17	19	18	22	15	45	17	23	18	30	17
14	15	42	17	5	18	2	15	47	17	21	18	23	15	48	17	26	18	31	16
15	15	45	17	8	18	3	15	50	17	24	18	24	15	52	17	29	18	32	15
16	15	48	17	10	18	4	15	53	17	26	18	25	15	55	17	32	18	33	14
17	15	51	17	13	18	5	15	57	17	29	18	26	15	59	17	35	18	34	13
18	15	54	17	15	18	6	16	0	17	31	18	27	16	2	17	37	18	35	12
19	15	57	17	18	18	6	16	3	17	34	18	28	16	6	17	40	18	36	11
20	16	0	17	20	18	7	16	7	17	36	18	29	16	9	17	42	18	37	10
21	16	2	17	23	18	7	16	10	17	38	18	30	16	13	17	44	18	38	9
22	16	5	17	25	18	8	16	13	17	40	18	31	16	16	17	47	18	38	8
23	16	7	17	28	18	8	16	17	17	43	18	31	16	19	17	49	18	39	7
24	16	10	17	30	18	9	16	20	17	45	18	32	16	23	17	52	18	39	6
25	16	13	17	33	18	9	16	23	17	48	18	32	16	26	17	55	18	40	5
26	16	17	77	34	18	9	16	27	17	50	18	33	16	30	17	57	18	41	4
27	16	20	17	35	18	10	16	30	17	53	18	34	16	33	17	59	18	41	3
28	16	22	17	37	18	10	16	33	17	55	18	34	16	36	18	2	18	42	2
29	16	25	17	38	18	10	16	36	17	58	18	35	16	39	18	4	18	43	1
30	16	28	17	40	18	10	16	38	18	0	18	35	16	42	18	7	18	43	●
	♍ ♓		♌ Day ♒ Night		♋ ♑		♍ ♓		♌ Day ♒ Night		♋ ♑		♍ ♓		♌ Day ♒ Night		♋ ♑		Degrees

Degree	ELEVATION. 42						43						44						POLE.
	♈ ♎		Day ♉ Night ♏		♊ ♐		♈ ♎		Day ♉ Night ♏		♊ ♐		♈ ♎		Day ♉ Night ♏		♊ ♐		
	H.	M.	H.	M.	H.	M.	D.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	
0	15	0	16	46	18	14	15	0	16	49	18	21	15	0	16	53	18	28	30
1	15	4	16	49	18	16	15	4	16	53	18	23	15	3	16	57	18	31	29
2	15	7	16	52	18	18	15	8	16	56	18	26	15	7	17	1	18	33	28
3	15	11	16	56	18	20	15	11	17	0	18	28	15	11	17	4	18	35	27
4	15	14	16	59	18	22	15	14	17	3	18	30	15	15	17	7	18	38	26
5	15	18	17	2	18	24	15	18	17	7	18	32	15	19	17	11	18	40	25
6	15	22	17	5	18	26	15	22	17	10	18	34	15	23	17	15	18	42	24
7	15	26	17	9	18	28	15	26	17	13	18	36	15	27	17	18	18	44	23
8	15	30	17	12	18	30	15	30	17	17	18	38	15	31	17	22	18	46	22
9	15	33	17	15	18	32	15	34	17	21	18	40	15	35	17	25	18	48	21
10	15	36	17	18	18	33	15	37	17	24	18	41	15	39	17	28	18	50	20
11	15	39	17	21	18	35	15	41	17	27	18	43	15	42	17	32	18	51	19
12	15	43	17	24	18	36	15	45	17	30	18	45	15	46	17	35	18	53	18
13	15	47	17	27	18	38	15	48	17	33	18	46	15	50	17	38	18	55	17
14	15	50	17	30	18	39	15	52	17	36	18	47	15	54	17	42	18	56	16
15	15	54	17	33	18	41	15	56	17	39	18	49	15	58	17	45	18	58	15
16	15	57	17	36	18	42	15	59	17	42	18	50	16	1	17	48	18	59	14
17	16	1	17	39	18	43	16	3	17	45	18	51	16	5	17	52	19	0	13
18	16	4	17	42	18	45	16	7	17	48	18	53	16	9	17	54	19	1	12
19	16	8	17	45	18	46	16	10	17	51	18	54	16	13	17	57	19	2	11
20	16	11	17	48	18	47	16	14	17	54	18	55	16	16	18	1	19	3	10
21	16	15	17	51	18	48	16	17	17	57	18	56	16	20	18	4	19	4	9
22	16	18	17	53	18	48	16	21	18	0	18	56	16	24	18	6	19	5	8
23	16	22	17	56	18	48	16	25	18	3	18	57	16	28	18	9	19	6	7
24	16	25	17	59	18	49	16	28	18	6	18	57	16	31	18	12	19	7	6
25	16	28	18	1	18	49	16	32	18	8	18	58	16	34	18	15	19	7	5
26	16	32	18	4	18	50	16	35	18	11	18	58	16	38	18	18	19	7	4
27	16	35	18	6	18	50	16	39	18	14	18	59	16	42	18	20	19	8	3
28	16	39	18	9	18	50	16	42	18	16	18	59	16	46	18	23	19	8	2
29	16	42	18	11	18	50	16	46	18	19	18	59	16	50	18	26	19	8	1
30	16	46	18	14	18	51	16	49	18	21	18	59	16	53	18	28	19	8	0
	♍ ♓		♌ Day ♒ Night		♋ ♑		♍ ♓		♌ Day ♒ Night		♋ ♑		♍ ♓		♌ Day ♒ Night		♋ ♑		Degrees

Degree	ELEVATION. 45						46						47 POLE.						
	♈ ♎		Day ♉ Night ♏		♊ ♐		♈ ♎		Day ♉ Night ♒		♊ ♐		♈ ♎		Day ♉ Night ♏		♊ ♐		
	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	
0	15	0	16	57	18	30	15	0	17	1	18	44	15	0	17	5	18	52	30
1	15	4	17	7	18	38	15	4	17	5	18	47	15	4	17	10	18	55	29
2	15	8	17	5	18	41	15	8	17	9	18	49	15	9	17	14	18	58	28
3	15	12	17	8	18	43	15	12	17	13	18	51	15	13	17	18	19	0	27
4	15	16	17	12	18	46	15	16	17	17	18	54	15	17	17	22	19	3	26
5	15	20	17	16	18	48	15	20	17	21	18	57	15	21	17	26	19	6	25
6	15	24	17	20	18	50	15	24	17	25	18	59	15	26	17	30	19	8	24
7	15	28	17	23	18	52	15	28	17	29	19	1	15	30	17	34	19	10	23
8	15	32	17	27	18	54	15	32	17	33	19	3	15	35	17	38	19	12	22
9	15	36	17	30	18	56	15	37	17	36	19	5	15	39	17	41	19	14	21
10	15	40	17	34	18	58	15	41	17	39	19	7	15	43	17	45	19	16	20
11	15	44	17	37	19	0	15	46	17	43	19	9	15	48	17	48	19	18	19
12	15	48	17	41	19	2	15	50	17	46	19	11	15	52	17	52	19	20	18
13	15	52	17	44	19	4	15	54	17	50	19	13	15	56	17	56	19	22	17
14	15	56	17	48	19	5	15	58	17	53	19	15	16	0	18	0	19	24	16
15	16	0	17	52	19	7	16	2	17	57	19	16	16	4	18	4	19	26	15
16	16	3	17	55	19	8	16	6	18	1	19	18	16	8	18	8	19	27	14
17	16	7	17	58	19	9	16	10	18	4	19	19	16	12	18	11	19	29	13
18	16	11	18	1	19	11	16	14	18	8	19	21	16	17	18	15	19	31	12
19	16	15	18	4	19	12	16	18	18	11	19	22	16	21	18	18	19	32	11
20	16	19	18	7	19	13	16	22	18	14	19	23	16	25	18	22	19	33	10
21	16	23	18	10	19	14	16	26	18	17	19	24	16	29	18	25	19	34	9
22	16	27	18	13	19	15	16	30	18	21	19	25	16	33	18	29	19	35	8
23	16	31	18	16	19	15	16	34	18	24	19	25	16	37	18	32	19	36	7
24	16	35	18	19	19	16	16	38	18	27	19	26	16	42	18	35	19	37	6
25	16	39	18	22	19	16	16	32	18	30	19	26	16	46	18	38	19	37	5
26	16	42	18	25	19	17	16	46	18	33	19	27	16	50	18	41	19	38	4
27	16	47	18	28	19	17	16	50	18	36	19	28	16	54	18	44	19	38	3
28	16	49	18	31	19	18	16	54	18	39	19	28	16	58	18	47	19	39	2
29	16	53	18	34	19	18	16	58	18	42	19	28	17	2	18	50	19	39	1
30	16	57	18	36	19	18	17	1	18	44	19	28	17	5	18	52	19	39	0
	♍ ♓		♌ Day ♒ Night		♋ ♑		♍ ♓		♌ Day ♒ Night		♋ ♑		♍ ♓		♌ Day ♒ Night		♋ ♑		Degrees

ELEVATION. 49 51 54 POLE.

Degrees	49 ♈ ♎		Day ♉ Night ♏		♊ ♐		51 ♈ ♎		Day ♉ Night ♏		♊ ♐		54 ♈ ♎		Day ♉ Night ♏		♊ ♐		
	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	
0	15	0	17	10	19	0	15	0	17	25	19	29	15	0	17	43	20	3	30
1	15	5	17	15	19	3	15	5	17	30	19	33	15	5	17	48	20	7	29
2	15	10	17	19	19	6	15	10	17	35	19	37	15	11	17	53	20	11	28
3	15	15	17	23	19	9	15	15	17	39	19	41	15	17	17	58	20	15	27
4	15	19	27	27	19	12	15	20	17	43	19	44	15	23	18	3	20	19	26
5	15	23	17	31	19	15	15	25	17	48	19	47	15	28	18	8	20	23	25
6	15	28	17	35	19	18	15	30	17	53	19	50	15	34	18	13	20	26	24
7	15	32	17	39	19	20	15	35	17	58	19	53	15	39	18	19	20	30	23
8	15	37	17	43	19	22	15	40	18	3	19	56	15	45	18	25	20	33	22
9	15	41	17	47	19	24	15	45	18	7	19	58	15	50	18	30	20	36	21
10	15	45	17	51	19	26	15	50	18	12	20	0	15	56	18	35	20	39	20
11	15	50	17	55	19	28	15	55	18	16	20	2	16	1	18	40	20	41	19
12	15	54	17	59	19	30	16	0	18	21	20	4	16	6	18	45	20	44	18
13	15	58	18	3	19	32	16	5	18	23	20	6	16	11	18	50	20	46	17
14	16	2	18	7	19	34	16	9	18	29	20	7	16	17	18	54	20	48	16
15	16	6	18	11	19	36	16	14	18	33	20	9	16	22	18	59	20	50	15
16	16	11	18	15	19	37	16	19	18	37	20	10	16	27	19	3	20	52	14
17	16	15	18	19	19	39	16	23	18	41	20	12	26	32	19	8	20	54	13
18	16	19	18	23	19	41	16	28	08	45	20	13	16	37	19	13	20	55	12
19	16	24	18	26	19	43	16	32	18	49	20	15	16	43	19	17	20	57	11
20	16	28	18	30	19	44	16	37	18	53	20	16	16	48	19	22	20	58	10
21	16	32	18	33	19	45	16	42	18	57	20	18	16	54	19	26	21	0	9
22	16	36	18	37	19	46	16	46	19	1	20	19	16	59	19	31	21	1	8
23	16	40	18	40	19	47	16	51	19	6	20	20	17	4	19	35	21	3	7
24	16	45	18	44	19	48	16	56	19	8	20	22	17	10	19	39	21	4	6
25	16	49	18	47	19	48	17	1	19	12	20	23	17	15	19	43	21	5	5
26	16	53	18	50	19	49	17	6	19	15	20	24	17	21	19	47	21	6	4
27	16	57	18	52	19	49	17	11	19	19	20	24	17	26	19	51	21	6	3
28	17	2	18	56	19	50	17	16	19	22	20	25	17	32	19	55	21	7	2
29	17	6	18	58	19	50	17	20	19	26	20	25	17	37	19	59	21	7	1
30	17	10	19	0	19	05	17	25	19	29	20	25	17	43	20	3	21	7	0
	♍ ♓		♌ Day ♒ Night		♋ ♑		♍ ♓		♌ Day ♒ Nigh		♋ ♑		♍ ♓		♌ Day ♒ Night		♋ ♑		Degree

TABLES

OF

DECLINATION

AND

RIGHT ASCENSION.

North Latitude.

	0		1		2		3		4		5		6		7		8		9		
♋	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M	D.	M.	D.	M	
0	23	32	24	32	25	32	26	32	27	32	28	32	29	32	30	32	31	32	32	32	30
1	23	31	24	31	25	31	26	31	27	31	28	31	29	31	30	31	31	31	32	31	29
2	23	31	24	31	25	31	26	31	27	31	28	31	29	31	30	31	31	31	32	31	28
3	23	50	24	30	25	30	26	30	27	30	28	30	29	30	30	30	31	30	32	30	27
4	23	28	24	28	25	28	26	28	27	28	28	28	29	28	30	28	31	28	32	28	26
5	23	26	24	26	25	26	26	26	27	26	28	26	29	26	30	26	31	26	32	26	25
6	23	23	24	23	25	23	26	23	27	22	28	22	29	22	30	22	31	22	32	22	24
7	23	20	24	20	25	20	26	20	27	19	28	19	29	19	30	19	31	19	32	19	23
8	23	17	24	17	25	17	26	16	27	16	28	16	29	16	30	16	31	16	32	15	22
9	23	13	24	13	25	13	26	13	27	12	28	12	29	12	30	12	31	12	32	12	21
10	23	9	24	9	25	9	26	9	27	8	28	8	29	8	30	8	31	8	32	8	20
11	13	4	24	4	25	4	26	4	27	2	28	3	29	3	30	3	31	3	32	3	19
12	22	59	23	59	24	59	25	59	26	58	27	58	28	58	29	57	30	57	31	57	18
13	22	53	23	53	24	53	25	53	26	54	27	52	28	52	29	51	30	51	31	51	17
14	22	47	23	47	24	46	25	46	26	46	27	45	28	45	29	45	30	44	31	44	16
15	22	41	23	41	24	40	25	40	26	40	27	39	28	39	29	39	30	38	31	38	15
16	22	34	23	34	24	33	25	33	26	33	27	32	28	32	29	32	30	31	31	31	14
17	22	27	23	27	24	26	25	26	26	25	27	25	28	24	29	24	30	34	31	23	13
18	22	19	23	18	24	18	25	18	26	17	27	16	28	16	29	16	30	15	31	15	12
19	22	10	23	10	24	9	25	9	26	8	27	7	28	6	29	6	30	5	31	5	11
20	22	2	23	2	24	1	25	0	25	59	26	58	27	57	28	57	29	56	30	55	10
21	21	53	24	53	23	52	24	51	25	50	26	49	27	48	28	48	29	47	30	46	9
22	21	43	22	43	23	42	24	41	25	40	26	39	27	38	28	38	29	37	30	36	8
23	21	33	22	33	23	32	24	31	25	30	26	29	27	28	28	28	29	27	30	25	7
24	21	23	22	22	23	21	24	20	25	19	26	18	27	17	28	16	29	15	30	14	6
25	21	13	22	11	23	10	24	9	25	8	26	7	27	6	28	5	29	4	30	3	5
26	21	1	22	0	22	59	23	58	24	57	25	56	26	55	27	54	28	53	29	52	4
27	20	50	21	48	22	47	23	46	24	45	25	44	26	43	27	42	28	41	29	40	3
28	20	38	21	36	22	35	23	34	24	33	25	32	26	30	27	29	28	28	29	27	2
29	20	26	21	23	22	22	23	21	24	20	25	19	26	17	27	16	28	15	29	14	1
30	20	13	21	12	22	10	23	9	24	7	25	6	26	4	27	3	28	1	28	59	0
																					♊

South Latitude.

	0		1		2		3		4		5		6		7		8		9		
Dg	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	
0	23	32	22	32	21	32	20	32	19	32	18	32	17	32	16	32	15	32	14	32	30
1	23	31	22	31	21	31	20	31	19	31	18	31	17	31	16	31	15	31	14	31	29
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3	23	30	22	30	21	30	20	30	19	30	18	30	17	30	16	30	15	30	14	30	27
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19	22	10	21	11	20	11	19	12	18	13	17	13	16	13	15	14	14	15	13	15	11
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21	21	53	20	54	19	55	18	56	17	57	16	57	15	58	4	58	13	59	12	59	9
22	21	43	20	44	19	45	18	46	17	47	16	47	15	48	14	48	13	49	12	49	8
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27	20	50	19	51	18	52	17	53	16	54	15	56	14	57	13	58	12	59	11	0	3
28	20	38	19	39	18	40	17	41	16	42	15	44	14	45	13	46	12	47	11	48	2
29	20	26	19	27	18	28	17	29	16	30	15	32	14	33	13	34	12	35	11	37	1
30	20	13	19	14	18	15	17	17	16	18	15	19	14	20	13	21	12	23	11	24	0
																					H

North Latitude.

	0		1		2		3		4		5		6		7		8		9		
♌	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	
0	20	13	21	12	22	10	23	9	24	7	25	6	26	4	27	3	28	1	28	59	30
1	20	0	20	59	21	57	22	56	23	54	24	53	25	51	26	49	27	47	28	45	29
2	19	47	20	45	21	44	22	42	23	40	24	39	25	37	26	35	27	33	28	31	28
3	19	33	20	31	21	30	22	28	23	26	24	25	25	23	26	21	27	19	28	17	27
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5	19	5	20	3	21	2	22	0	22	58	23	56	24	54	25	52	26	50	27	48	25
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7	18	35	19	34	20	32	21	29	22	27	23	25	24	23	25	21	26	19	27	17	23
8	18	20	19	18	20	16	21	13	22	11	23	9	24	7	25	5	26	3	27	1	22
9	18	4	19	2	20	0	20	57	21	55	22	53	23	51	24	48	25	46	26	44	21
10	17	48	18	46	19	44	20	41	21	39	22	37	23	34	24	31	25	29	26	27	20
11	17	32	18	29	19	27	20	25	21	22	22	20	23	17	24	14	25	12	26	10	19
12	17	15	18	12	19	10	20	8	21	5	22	3	23	0	23	57	24	55	25	52	18
13	16	58	17	55	18	53	19	51	20	48	21	46	22	43	23	40	24	37	25	34	17
14	16	41	17	38	18	36	19	33	20	30	21	28	22	25	23	22	24	19	25	16	16
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19	15	11	16	8	17	4	18	1	18	58	19	55	20	52	21	49	22	46	23	43	11
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23	13	54	14	51	15	47	16	44	17	40	18	37	19	33	20	30	21	26	22	22	7
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25	13	14	14	11	15	7	16	4	17	0	17	57	18	53	19	49	20	45	21	41	5
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27	12	33	13	30	14	26	15	22	16	18	17	15	18	11	19	7	20	3	20	59	3
28	12	13	13	9	14	5	15	1	15	57	16	54	17	50	18	46	19	43	20	38	2
29	11	52	12	48	13	44	14	40	15	36	16	33	17	29	18	25	19	21	20	17	1
30	11	31	12	27	13	23	14	19	15	15	16	11	17	7	18	3	18	59	19	55	0
																					♉

South Latitude.

	0		1		2		3		4		5		6		7		8		9		
♌	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	
0	20	13	19	14	18	16	17	17	16	18	15	20	14	21	13	22	12	24	11	25	30
1	20	0	19	1	18	3	17	4	16	5	15	7	14	8	13	10	12	12	11	14	29
2	19	47	18	48	17	50	16	51	15	52	14	54	13	55	12	57	11	59	11	1	28
3	19	33	18	35	17	36	16	38	15	39	14	41	13	42	12	44	11	46	10	48	27
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6	18	50	17	52	16	54	15	56	14	58	13	59	13	1	12	3	11	5	10	7	24
7	18	35	17	38	16	39	15	41	14	43	13	44	12	46	11	48	10	50	9	52	23
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9	18	4	17	6	16	8	15	10	14	12	13	14	12	16	11	18	10	20	9	22	21
10	17	48	16	50	15	52	14	54	13	56	12	58	12	1	11	3	10	5	9	7	20
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12	17	15	16	17	15	20	14	22	13	24	12	26	11	29	10	31	9	33	8	35	18
13	16	56	16	0	15	3	14	5	13	8	12	10	11	13	10	15	9	17	8	20	17
14	16	41	15	43	14	46	13	48	12	51	11	53	10	56	9	58	9	1	8	3	16
15	16	24	15	26	14	28	13	31	12	34	11	36	10	39	9	41	8	44	7	46	15
16	16	6	15	8	14	11	13	14	12	17	11	19	10	22	9	24	8	27	7	30	14
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19	15	11	14	14	13	17	12	20	11	23	10	25	9	28	8	31	7	34	6	37	11
20	14	52	13	55	12	58	12	1	11	4	10	7	9	10	8	13	7	16	6	19	10
21	14	33	13	36	12	39	11	42	10	45	9	48	8	51	7	54	6	57	6	0	9
22	14	14	13	17	12	20	11	23	10	26	9	29	8	32	7	35	6	38	5	41	8
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25	13	14	12	18	11	21	10	24	9	28	8	31	7	35	6	38	5	41	4	44	5
26	12	54	11	59	11	1	10	4	9	8	8	11	7	15	6	18	5	22	4	5	4
27	12	33	11	36	10	39	9	43	8	47	7	50	6	54	5	57	5	1	4	25	3
28	12	13	11	17	10	20	9	24	8	28	7	31	6	35	5	37	4	42	3	46	2
29	11	52	10	56	10	0	9	4	8	7	7	11	6	15	5	17	4	22	3	26	1
30	11	31	10	35	9	39	8	43	7	46	6	50	5	54	4	57	4	1	3	5	0
																					♉

North Latitude.

	0		1		2		3		4		5		6		7		8		9		
♍	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	
0	11	31	12	27	13	23	14	19	15	15	16	11	17	7	18	3	18	59	19	55	30
1	11	9	12	5	13	1	13	57	14	53	15	46	16	45	17	41	18	37	19	33	29
2	10	48	11	45	12	41	13	36	14	32	15	28	16	24	17	20	18	16	19	21	28
3	10	26	11	23	12	19	13	14	14	10	15	6	16	2	16	58	17	54	18	49	27
4	10	5	11	1	11	57	12	52	13	48	14	44	15	40	16	36	17	31	18	27	26
5	9	43	10	39	11	35	12	30	13	26	14	22	15	18	16	14	17	9	18	4	25
6	9	21	10	17	11	13	12	8	13	4	14	0	14	55	15	51	16	46	17	41	24
7	8	58	9	55	10	51	11	46	12	42	13	37	14	33	15	28	16	23	17	18	23
8	8	36	9	32	10	28	11	23	12	19	13	14	14	10	15	5	16	0	16	55	22
9	8	13	9	10	10	6	11	1	11	56	12	52	13	47	14	42	15	37	16	32	21
10	7	51	8	47	9	42	10	38	11	33	12	29	13	24	14	19	15	14	16	6	20
11	7	28	8	23	9	18	10	14	11	9	12	5	13	0	13	55	14	50	15	45	19
12	7	5	8	0	8	55	9	51	10	46	11	42	12	37	13	32	14	27	15	22	18
13	6	42	7	37	8	32	9	28	10	23	11	19	12	14	13	9	14	4	14	59	17
14	6	19	7	14	8	9	9	5	10	0	10	56	11	51	12	46	13	41	14	36	16
15	5	56	6	52	7	47	8	42	9	57	10	33	11	28	12	23	13	18	14	13	15
16	5	33	6	29	7	24	8	19	9	14	10	10	11	5	12	0	12	54	13	49	14
17	5	9	6	5	7	0	7	55	8	50	9	46	10	41	11	36	12	31	13	26	13
18	4	46	5	42	6	37	7	32	8	27	9	22	10	17	11	12	12	7	13	2	12
19	4	22	5	18	6	13	7	8	8	3	8	58	9	53	10	48	11	43	12	38	11
20	3	58	4	54	5	49	6	44	7	39	8	34	9	29	10	24	11	19	12	14	10
21	3	35	4	30	5	25	6	20	7	15	8	10	9	5	10	0	10	55	11	50	9
22	3	11	4	7	5	2	5	57	7	2	7	47	8	42	9	36	10	32	11	27	8
23	2	47	3	43	4	38	5	33	6	28	7	23	8	18	9	13	10	8	11	3	7
24	2	24	3	19	4	14	5	9	6	4	6	59	7	54	8	49	9	44	10	39	6
25	2	0	2	55	3	50	4	45	5	50	6	35	7	30	8	24	9	19	10	14	5
26	1	36	2	31	3	26	4	21	5	16	6	11	7	6	8	0	8	55	9	50	4
27	1	12	2	7	3	2	3	57	4	52	5	47	6	42	7	35	8	31	9	26	3
28	0	48	1	43	2	38	3	33	4	28	5	23	6	18	7	13	8	8	9	3	2
29	0	24	1	19	2	14	3	9	4	4	4	59	5	54	6	49	7	44	8	39	1
30	0	0	0	55	1	50	2	45	3	40	4	35	5	30	6	25	7	20	8	15	0
																					♈

TABLES

South Latitude.

	0		1		2		3		4		5		6		7		8		9		
♍	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	
0	11	31	10	35	9	39	8	43	7	46	6	50	5	54	4	57	4	1	3	5	30
1	11	9	10	14	9	18	8	22	7	25	6	29	5	33	4	36	3	40	2	44	29
2	10	48	9	53	8	57	8	1	7	4	6	8	5	12	4	16	3	20	2	24	28
3	10	26	9	31	8	35	7	39	6	43	5	47	4	51	3	55	2	59	2	3	27
4	10	5	9	9	8	14	7	18	6	22	5	26	4	30	3	34	2	38	1	42	26
5	9	43	8	47	7	52	6	56	6	0	5	4	4	8	3	12	2	17	1	21	25
6	9	21	8	25	7	30	6	34	5	38	4	42	3	46	2	50	1	55	0	59	24
7	8	58	8	3	7	7	6	11	5	15	4	19	3	23	2	27	1	32	0	37	23
8	8	36	7	40	6	44	5	49	4	53	3	57	3	1	2	5	1	10	0	15	23
9	8	13	7	17	6	21	5	26	4	30	3	44	2	39	1	43	0	47	0	8	21
10	7	51	6	55	5	59	5	4	4	8	3	12	2	17	1	21	0	25	0	31	20
11	7	28	6	32	5	37	4	51	3	46	2	50	1	55	0	59	0	3	0	53	19
12	7	5	6	9	5	14	4	18	3	23	2	27	1	32	0	36	0	19	1	15	18
13	6	42	5	46	4	51	3	55	3	0	2	4	1	9	0	14	0	42	1	37	17
14	6	19	5	23	4	28	3	32	2	37	1	41	0	46	0	9	1	5	2	0	16
15	5	56	5	1	4	6	3	10	2	15	1	19	0	24	0	33	1	29	2	23	15
16	5	33	4	38	3	41	2	57	1	52	0	56	0	0	0	56	1	52	2	47	14
17	5	9	4	14	3	19	2	24	1	29	0	33	0	24	1	19	2	15	3	10	13
18	4	46	3	51	2	56	2	1	1	5	0	10	0	47	1	42	2	38	3	33	12
19	4	22	3	27	2	32	1	37	0	41	0	14	1	9	2	5	3	0	3	56	11
20	3	58	3	3	2	8	1	13	0	18	0	38	1	33	2	28	3	23	4	19	10
21	3	35	2	29	1	44	0	49	0	6	1	2	1	57	2	52	3	47	4	42	9
22	3	11	2	16	1	21	0	26	0	29	1	25	2	20	3	15	4	10	5	5	8
23	2	47	1	52	0	57	0	2	0	53	1	48	2	43	3	38	4	33	5	28	7
24	2	24	1	28	0	33	0	22	1	17	2	12	3	27	4	2	4	57	5	52	6
25	2	0	1	5	0	9	0	46	1	42	2	36	3	31	4	26	5	21	6	16	5
26	1	36	0	41	0	15	1	10	2	5	3	0	3	55	4	50	5	45	6	40	4
27	1	12	0	17	0	39	1	34	2	29	3	24	4	19	5	14	6	9	7	4	3
28	0	48	0	7	1	3	1	57	2	52	3	47	4	42	5	37	6	32	7	27	2
29	0	24	0	31	1	27	2	21	3	16	4	11	5	6	6	1	6	56	7	51	1
30	0	0	0	56	1	50	2	45	3	40	4	35	5	30	6	25	7	20	8	15	0
																					♈

North Latitude.

	0		1		2		3		4		5		6		7		8		9		
♎	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	M.	D.	D.	M.	
0	0	0	0	55	1	50	2	45	3	40	4	35	5	30	6	25	7	20	8	15	30
1	0	22	0	31	1	27	2	21	3	16	4	11	5	6	6	1	6	56	7	51	29
2	0	48	0	7	1	3	1	57	2	52	3	47	4	42	5	34	6	32	7	27	28
3	1	12	0	S 1	0	39	1	S34	2	29	3	24	4	19	5	10	6	9	7	4	27
4	1	36	0	41	0	15	1	10	2	5	3	0	3	55	4	50	5	45	6	40	26
5	2	0	1	5	0	9	0	46	1	41	2	36	3	31	4	26	5	21	6	16	25
6	2	24	1	29	0	34	0	22	1	17	2	12	3	7	4	2	4	57	5	52	24
7	2	47	1	52	0	57	0	2	0	53	1	48	2	43	3	38	4	33	5	28	23
8	3	11	2	16	1	21	0	26	0	29	1	25	2	20	3	15	4	10	5	5	22
9	3	35	2	30	1	44	0	49	0	6	1	2	1	57	2	52	3	40	4	42	21
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11	4	22	3	27	2	32	1	37	0	41	0	14	1	9	2	4	3	0	3	55	19
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13	5	9	4	14	3	19	2	24	1	28	0	32	0	23	1	19	2	13	3	9	17
14	5	33	4	38	3	43	2	47	1	52	0	56	0	0	0	56	1	52	2	46	16
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19	7	28	6	32	5	37	4	41	3	46	2	50	1	55	0	59	0	40	0	52	11
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21	8	13	7	18	6	22	5	27	4	31	3	35	2	40	1	44	0	44	0	7	9
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23	8	58	8	3	7	7	6	12	5	16	4	20	3	24	2	28	1	38	0	38	7
24	9	21	8	25	7	30	6	34	5	38	4	42	3	46	2	50	1	55	1	9	6
25	9	43	8	47	7	52	6	56	6	0	5	4	4	8	3	12	2	17	1	21	5
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27	10	26	9	31	8	36	7	40	6	43	5	47	4	51	3	55	2	52	2	3	3
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29	11	9	10	14	9	18	8	22	7	25	6	29	5	33	4	37	3	41	2	45	1
30	11	31	10	35	9	39	8	43	7	46	6	50	5	54	4	57	4	1	3	5	0
																					♓

South Latitude.

	0		1		2		3		4		5		6		7		8		9		
♎	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M	D.	M.	D.	M.	
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9	3	35	4	29	5	24	6	19	7	15	8	10	9	5	10	0	10	55	11	50	21
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29	11	9	12	6	13	2	13	58	14	54	15	50	16	46	17	42	18	37	19	32	1
30	11	31	12	27	13	23	14	19	15	15	16	11	17	7	18	3	18	59	19	54	0
																					♓

North Latitude.

	0		1		2		3		4		5		6		7		8		9		
♏	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	
0	11	31	10	35	9	39	8	43	7	46	6	50	6	54	4	57	4	1	3	5	30
1	11	52	10	56	10	0	9	4	8	7	7	11	5	15	5	18	4	22	3	26	29
2	12	13	11	17	10	20	9	24	8	28	7	31	6	35	5	38	4	42	3	46	28
3	12	33	11	37	10	40	9	44	8	48	7	51	6	55	5	58	5	2	4	6	27
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7	13	54	12	58	12	1	11	4	10	7	9	10	8	13	7	16	6	20	5	24	23
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9	14	33	13	36	12	39	11	42	10	45	9	48	8	51	7	54	6	57	6	0	21
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19	17	32	16	34	15	36	14	38	13	40	12	42	11	45	10	47	9	49	8	51	11
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29	20	0	19	1	18	3	17	4	16	5	15	7	14	8	13	10	12	12	11	14	1
30	20	13	19	14	18	16	17	17	16	18	15	20	14	21	13	22	12	24	11	26	0
																					♒

South Latitude.

	0		1		2		3		4		5		6		7		8		9		
♍	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M	D.	M.	D.	M.	.
0	11	31	12	27	13	23	14	19	15	15	16	11	17	7	18	3	18	59	19	54	30
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2	12	13	13	9	14	5	15	1	15	57	16	54	17	50	18	46	19	42	20	37	28
3	12	33	13	29	14	25	15	21	16	18	17	14	18	10	19	6	20	2	20	58	27
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5	13	14	14	11	15	7	16	3	17	0	17	56	18	52	19	49	20	45	21	40	25
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7	13	54	14	51	15	47	16	44	17	40	18	37	19	33	20	30	21	26	22	21	23
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13	15	48	16	45	17	42	18	39	19	36	20	33	21	30	22	27	23	24	24	21	17
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19	17	32	18	29	19	27	20	25	21	23	22	20	23	17	24	14	25	12	26	10	11
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21	18	4	19	2	20	0	20	57	21	55	22	53	23	51	24	48	25	46	26	44	9
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29	20	0	20	59	21	47	22	56	23	54	24	53	25	51	26	49	27	47	28	45	1
30	20	13	21	12	22	10	23	9	24	7	25	6	26	4	27	3	28	1	29	0	0
																					♒

North Latitude.

	0		1		2		3		4		5		6		7		8		9		
♐	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	
0	20	13	19	14	18	16	17	17	16	18	15	20	14	21	13	22	12	24	11	26	30
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2	20	38	19	39	18	40	17	41	16	42	15	44	14	45	13	46	12	48	11	49	28
3	20	50	19	51	18	52	17	53	16	54	15	55	14	57	13	58	12	49	12	0	27
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21	23	13	22	13	21	13	20	13	19	14	18	14	17	14	16	14	15	14	14	14	9
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29	23	31	22	31	21	31	20	31	19	31	28	31	17	31	16	31	15	31	14	31	1
30	23	32	22	32	21	32	20	32	19	31	18	32	17	32	16	32	15	32	14	32	0
																					♑

South Latitude.

	0		1		2		3		4		5		6		7		8		9		
‡	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	
0	20	13	21	12	22	10	23	9	24	7	25	6	26	4	27	3	28	1	28	59	30
1	20	26	21	25	22	23	23	22	24	20	25	19	26	17	27	16	28	14	29	12	29
2	20	38	21	37	22	36	23	35	24	33	25	32	26	30	27	29	28	27	29	25	28
3	20	50	21	49	22	48	23	47	24	45	25	44	26	43	27	42	28	40	29	38	27
4	21	1	22	0	22	59	23	58	24	57	25	55	26	55	27	54	28	52	29	50	26
5	21	13	22	11	23	10	24	9	25	8	26	7	27	6	28	5	29	4	30	2	25
6	21	23	22	22	23	21	24	20	25	19	26	18	27	17	28	16	29	15	30	14	24
7	21	33	22	32	23	31	24	31	25	30	26	29	27	28	28	27	29	26	30	25	23
8	21	43	22	42	23	41	24	41	25	40	26	39	27	38	28	37	29	37	30	36	22
9	21	53	22	52	23	51	24	51	25	50	26	49	27	48	28	47	29	47	30	46	21
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17	22	53	23	53	24	53	25	52	26	52	27	52	28	51	29	51	30	51	31	50	13
18	22	59	23	59	24	59	25	58	26	58	27	58	28	57	29	57	30	57	31	56	12
19	23	4	24	4	25	4	26	3	27	3	28	3	29	2	30	2	31	2	32	2	11
20	23	9	24	9	25	9	26	8	27	8	28	8	29	7	30	7	31	7	32	7	10
21	23	13	24	13	25	13	26	13	27	13	28	12	29	12	30	12	31	12	32	12	9
22	23	17	24	17	25	17	26	17	27	16	28	16	29	16	30	16	31	16	32	16	8
23	23	20	24	20	25	20	26	20	27	19	28	19	29	19	30	19	31	19	32	19	7
24	23	23	24	23	25	23	26	23	27	22	28	22	29	22	30	22	31	22	32	22	6
25	23	26	24	26	25	26	26	26	27	25	28	25	29	25	30	25	31	25	32	25	5
26	23	28	24	28	25	28	26	28	27	28	28	28	29	28	30	28	31	28	32	28	4
27	23	30	24	30	25	30	26	30	27	30	28	30	29	30	30	30	31	30	32	30	3
28	23	21	24	31	25	31	26	31	27	31	28	31	29	31	30	31	31	31	32	31	2
29	23	31	24	31	25	31	26	31	27	31	28	31	29	31	30	31	31	31	32	31	1
30	23	32	24	32	25	32	26	32	27	32	28	32	29	32	30	32	31	32	32	32	0

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♈	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M	D.	M.	D.	M.
0	0	0	359	37	359	13	358	49	358	25	358	1	357	37	357	13	356	48	356	23
1	0	55	0	32	0	8	359	44	359	20	358	56	358	32	358	8	357	43	357	18
2	1	50	1	27	1	3	0	39	0	15	359	51	359	27	359	3	358	38	358	13
3	2	45	2	22	1	58	1	34	1	10	0	46	0	22	359	58	359	34	359	9
4	3	40	3	17	2	53	2	29	2	5	1	41	1	17	0	53	0	29	0	4
5	4	35	4	12	3	48	3	24	3	0	2	36	2	12	1	48	1	24	0	59
6	5	30	5	7	4	43	4	19	3	55	3	31	3	7	2	43	2	19	1	54
7	6	25	6	2	5	38	5	14	4	50	4	26	4	2	3	38	3	14	2	49
8	7	21	6	57	6	33	6	9	5	45	5	21	4	57	4	33	4	9	3	44
9	8	16	7	52	7	28	7	4	6	40	6	16	5	52	5	28	5	4	4	39
10	9	11	8	47	8	23	7	59	7	35	7	11	6	47	6	23	5	59	5	34
11	10	6	9	42	9	18	8	55	8	31	8	7	7	43	7	19	6	55	6	30
12	11	2	10	38	10	14	9	51	9	27	9	3	8	39	8	15	7	51	7	26
13	11	57	11	33	11	9	10	46	10	22	9	58	9	34	9	10	8	46	8	22
14	12	53	12	29	12	5	11	42	11	18	10	54	10	30	10	6	9	42	9	18
15	13	48	13	25	13	1	12	38	12	14	11	50	11	26	11	2	10	38	10	14
16	14	44	14	20	13	57	13	34	13	10	12	46	12	22	11	58	11	34	11	10
17	15	40	15	16	14	53	14	30	14	6	13	42	13	18	12	54	12	30	12	6
18	16	31	16	12	15	49	15	26	15	2	14	39	14	15	13	51	13	27	13	3
19	17	35	17	8	16	45	16	22	15	58	15	35	15	11	14	47	14	23	13	59
20	18	27	18	4	17	41	17	18	16	54	16	31	16	7	15	44	15	20	14	56
21	19	23	19	0	18	37	18	14	17	51	17	28	17	4	16	41	16	17	15	53
22	20	20	19	56	19	33	19	11	18	48	18	25	18	1	17	38	17	14	16	50
23	21	16	20	53	20	30	20	8	19	45	19	22	18	58	18	35	18	11	17	47
24	22	12	21	50	21	27	21	5	20	42	20	19	19	55	19	32	19	8	18	44
25	23	9	22	47	22	24	22	2	21	39	21	16	20	52	20	29	20	5	19	41
26	24	6	23	44	23	21	22	59	22	36	22	13	21	50	21	27	21	3	20	39
27	25	2	24	41	24	19	23	57	23	34	23	11	22	48	22	25	22	1	21	37
28	25	59	25	38	25	16	24	54	24	31	24	9	23	46	23	23	22	59	22	35
29	26	57	26	35	26	13	25	51	25	29	25	7	24	44	24	21	23	57	23	34
30	27	54	27	33	27	11	26	49	26	27	26	5	25	42	25	19	24	56	24	52

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♈	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	0	0	0	23	0	47	1	11	1	35	1	59	2	23	2	47	3	12	3	36
1	0	55	1	18	1	42	2	6	2	30	2	54	3	18	3	42	4	6	4	30
2	1	50	2	13	2	57	3	1	3	25	3	49	4	13	4	37	5	1	5	25
3	2	45	3	8	3	32	3	56	4	20	4	44	5	8	5	32	5	56	6	20
4	3	40	4	3	4	27	4	51	5	15	5	39	6	3	6	27	6	51	7	15
5	4	35	4	58	5	22	5	46	6	10	6	34	6	58	7	22	7	46	8	9
6	5	30	5	54	6	18	6	42	7	6	7	30	7	53	8	17	8	41	9	4
7	6	25	6	49	7	13	7	37	8	1	8	25	8	48	9	12	9	36	9	59
8	7	21	7	44	8	8	8	32	8	56	9	20	9	43	10	7	10	30	10	53
9	8	16	8	40	9	4	9	28	9	51	10	15	10	38	11	2	11	25	11	48
10	9	11	9	35	9	59	10	23	10	46	11	10	11	33	11	57	12	19	12	42
11	10	6	10	30	10	54	11	18	11	41	12	5	12	28	12	52	13	14	13	37
12	11	2	11	25	11	49	12	13	12	36	13	0	13	23	13	47	14	9	14	32
13	11	57	12	20	12	44	13	8	13	31	13	55	14	18	14	41	15	4	15	27
14	12	53	13	16	13	39	14	3	14	26	14	50	15	13	15	36	15	59	16	21
15	13	48	14	12	14	35	14	58	15	21	15	45	16	8	16	31	16	54	17	16
16	14	44	15	7	15	30	15	53	16	16	16	40	17	3	17	26	17	49	18	11
17	15	40	16	2	16	25	16	48	17	11	17	35	17	58	18	21	18	44	19	6
18	16	35	16	58	17	21	17	44	18	7	18	30	18	53	19	16	19	39	20	1
19	17	31	17	54	28	17	18	40	19	2	19	25	19	48	20	11	20	34	20	56
20	18	27	18	50	19	13	19	36	19	58	20	21	20	43	21	6	21	29	21	51
21	19	23	19	46	20	9	20	23	20	54	21	17	21	39	22	2	22	24	22	46
22	20	20	20	42	21	5	21	28	21	50	22	12	22	34	22	57	23	19	23	41
23	21	16	21	38	22	1	22	24	22	46	23	8	23	30	23	52	24	14	24	36
24	22	12	22	35	22	57	23	20	23	42	24	4	24	26	24	48	25	10	25	32
25	23	9	23	31	23	53	24	16	24	38	25	0	25	21	25	43	26	5	26	27
26	24	6	24	28	24	50	25	12	25	34	25	55	26	17	26	39	27	0	27	22
27	25	2	25	25	25	47	26	9	26	30	26	52	27	13	27	35	27	56	28	17
28	25	59	26	22	26	43	27	5	27	26	27	48	28	9	28	30	28	51	29	12
29	26	57	27	19	27	40	28	1	28	22	28	44	29	5	29	26	29	47	30	8
30	27	54	28	16	28	37	28	58	29	19	29	40	30	1	30	22	30	43	31	4

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♉	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	27	54	27	33	27	11	26	49	26	27	26	5	25	42	25	19	24	56	24	32
1	28	51	28	30	28	8	27	47	27	25	27	3	26	40	26	17	25	54	25	31
2	29	49	29	27	29	6	28	45	28	23	28	1	27	38	27	16	26	53	26	30
3	30	46	30	25	30	4	29	43	29	21	28	59	28	37	28	15	27	52	27	29
4	31	44	31	23	31	2	30	41	30	19	29	58	29	36	29	14	28	51	28	28
5	32	42	32	21	32	0	31	39	31	18	30	57	30	35	30	13	29	50	29	27
6	33	40	33	20	32	59	32	38	32	17	31	56	31	34	31	12	30	50	30	27
7	34	38	34	18	33	58	33	37	33	16	32	55	32	33	32	12	31	50	31	27
8	35	37	35	17	34	57	34	36	34	25	33	54	33	33	33	12	32	50	32	27
9	36	36	36	16	35	56	35	36	35	15	34	54	34	33	34	12	33	51	33	27
10	37	34	37	15	36	55	36	35	36	15	35	54	35	33	35	12	34	51	34	28
11	38	33	38	14	37	54	37	35	37	15	36	54	36	33	36	13	35	52	35	29
12	39	33	39	14	38	54	38	35	38	15	37	55	37	34	37	14	36	53	36	30
13	40	32	40	13	39	54	39	35	39	15	38	56	38	35	38	15	37	54	37	32
14	41	31	41	13	40	54	40	35	40	16	39	57	39	36	39	16	38	56	38	34
15	42	31	42	13	41	54	41	36	41	17	40	58	40	38	40	18	39	58	39	36
16	43	31	43	13	42	54	42	36	42	18	41	59	41	39	41	19	41	0	40	38
17	44	31	44	13	43	55	43	37	43	19	43	0	42	40	42	21	42	2	41	40
18	45	31	45	14	44	56	44	38	44	20	44	1	43	42	43	23	43	4	42	43
19	46	32	46	14	45	57	45	39	45	21	45	3	44	44	44	25	44	7	43	46
20	47	32	47	15	46	58	46	40	46	23	46	7	45	46	45	28	45	10	44	50
21	48	33	48	16	47	59	47	42	47	25	47	5	46	49	46	31	46	13	45	54
22	49	34	49	17	49	0	48	44	48	27	48	9	47	52	47	34	47	16	46	58
23	50	35	50	18	50	2	49	46	49	29	49	12	48	55	48	37	48	20	48	3
24	51	36	51	20	51	4	50	48	50	32	50	15	49	58	49	41	49	24	49	7
25	52	38	52	22	52	6	51	51	51	35	51	18	51	2	50	45	50	28	50	12
26	53	40	53	24	53	9	52	54	52	38	52	22	52	6	51	49	51	33	51	17
27	54	42	54	27	54	12	53	57	53	42	53	26	53	10	52	54	52	38	52	22
28	55	44	55	29	55	15	55	0	54	45	54	30	54	14	53	58	53	43	53	27
29	56	46	56	32	56	18	56	3	55	46	55	34	55	18	55	3	54	48	54	32
30	57	48	57	35	57	21	57	7	56	53	56	38	56	23	56	8	55	53	55	37

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♉	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	M.	D.	D.	M.
0	27	54	28	16	28	37	28	58	29	19	29	40	30	1	30	22	30	43	31	4
1	28	51	29	13	29	34	29	55	30	16	30	37	30	57	31	18	31	39	31	59
2	29	4	30	10	30	31	30	52	31	13	31	34	31	54	32	14	32	35	32	55
3	30	46	31	7	31	28	31	49	32	10	32	31	32	51	33	11	33	31	33	51
4	31	44	32	5	32	25	32	46	33	7	33	27	33	47	34	7	34	27	34	46
5	32	42	33	3	33	23	33	43	34	4	34	24	34	44	35	4	35	23	35	42
6	33	40	34	1	34	25	34	41	35	1	35	21	35	41	36	1	36	20	36	38
7	34	38	34	59	35	19	35	39	35	58	36	18	36	38	36	57	37	16	37	34
8	35	37	35	57	36	17	36	37	36	56	37	15	37	35	37	54	38	13	38	31
9	36	36	36	56	37	15	37	35	37	54	38	13	38	32	38	51	39	10	39	28
10	37	34	37	54	38	13	38	33	38	52	39	11	39	29	39	48	40	7	40	25
11	38	33	38	53	39	12	39	31	39	50	40	9	40	27	40	45	41	4	41	22
12	39	33	39	52	40	11	40	30	40	48	41	7	41	25	41	43	42	1	42	18
13	40	32	40	51	41	10	41	28	41	46	42	5	42	23	42	41	42	58	43	15
14	41	31	41	50	42	9	42	27	42	45	43	3	43	21	43	39	43	56	44	12
15	42	32	42	50	43	8	43	26	43	44	44	2	44	19	44	38	44	54	45	10
16	43	31	43	49	44	7	44	25	44	43	45	0	45	17	45	35	45	51	46	7
17	44	31	44	49	45	6	45	24	45	42	45	59	46	15	46	33	46	49	47	4
18	45	31	45	49	46	6	46	23	46	41	46	58	47	14	47	31	47	47	48	2
19	46	32	46	49	47	6	47	23	47	40	47	57	48	13	48	29	48	45	48	59
20	47	32	47	49	48	6	48	23	48	39	48	56	49	12	49	28	49	43	49	57
21	48	33	48	50	49	6	49	23	49	39	49	55	50	11	50	27	50	41	50	55
22	49	34	49	50	50	6	50	23	50	38	50	54	51	10	51	25	51	40	51	53
23	50	35	50	51	51	6	51	23	51	38	51	53	52	9	52	24	52	38	52	51
24	51	36	51	52	52	7	52	23	52	38	52	53	53	8	53	23	53	37	53	49
25	52	38	52	53	53	8	53	24	53	38	53	53	54	8	54	22	54	36	54	48
26	53	40	53	55	54	9	54	24	54	38	54	53	55	7	55	21	55	35	55	47
27	54	42	54	56	55	11	55	25	55	39	55	53	56	7	56	21	56	34	56	46
28	55	44	55	58	56	12	56	26	56	40	56	54	57	7	57	20	57	33	57	45
29	6	46	57	0	57	13	57	27	57	41	57	54	58	7	58	20	58	32	58	44
30	57	48	58	2	58	15	58	29	58	42	58	55	59	7	59	20	59	32	59	43

TABLES

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
II	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	57	48	57	35	57	21	57	7	56	53	56	38	56	23	56	8	55	53	55	38
1	58	51	58	38	58	24	58	10	57	57	57	42	57	28	57	13	56	59	56	44
2	59	53	59	41	59	27	59	14	59	1	58	47	58	33	58	19	58	5	57	50
3	60	56	60	44	60	31	60	18	60	5	59	52	59	38	59	25	59	11	58	57
4	61	59	61	47	61	35	61	22	61	10	60	57	60	44	60	31	60	17	60	4
5	63	3	62	51	62	39	62	27	62	15	62	2	61	50	61	37	61	24	61	11
6	64	6	63	55	63	43	63	32	63	20	63	8	62	56	62	44	62	31	62	18
7	65	9	64	59	64	47	64	37	64	25	64	13	64	2	63	50	63	38	63	25
8	66	13	66	3	65	52	65	42	65	30	65	19	65	8	64	56	64	45	64	33
9	67	17	67	7	66	57	66	47	66	36	66	25	66	14	66	3	65	52	65	41
10	68	21	68	11	68	2	67	52	67	42	67	31	67	21	67	10	67	0	66	49
11	69	25	69	16	69	7	68	57	68	48	68	38	68	28	68	18	68	8	67	57
12	70	29	70	21	70	12	70	3	69	54	69	45	69	35	69	26	69	16	69	5
13	71	34	71	26	71	17	71	9	71	0	70	51	70	42	70	33	70	24	70	14
14	72	38	72	31	72	22	72	15	72	6	71	58	71	49	71	41	71	32	71	23
15	73	43	73	36	73	28	73	21	73	13	73	5	72	57	72	49	72	41	72	32
16	74	47	74	41	74	33	74	27	74	19	74	12	74	4	73	57	73	49	73	41
17	75	52	75	46	75	39	75	33	75	26	75	19	75	12	75	5	74	58	74	50
18	76	57	76	51	76	45	76	39	76	33	76	27	76	20	76	14	76	7	75	59
19	78	2	77	56	77	51	77	45	77	40	77	34	77	28	77	22	77	16	77	9
20	79	7	79	2	78	57	78	52	78	47	78	41	78	36	78	30	78	25	78	18
21	80	12	80	8	80	3	79	59	79	54	79	49	79	44	79	39	79	34	79	28
22	81	17	81	13	81	9	81	5	81	1	80	56	80	52	80	48	80	43	80	37
23	82	22	82	18	82	15	82	11	82	8	82	4	82	0	81	57	81	52	81	47
24	83	28	83	24	83	21	83	18	83	15	83	11	83	9	83	6	83	2	82	57
25	84	33	84	30	84	27	84	25	84	22	84	20	84	17	84	15	84	17	84	7
26	85	38	85	36	85	33	85	32	85	29	85	28	85	25	85	24	85	21	85	18
27	86	44	86	42	86	40	86	39	86	37	86	36	86	34	86	33	86	31	86	28
28	87	49	87	48	87	46	87	46	87	44	87	44	87	42	87	42	87	40	87	39
29	88	55	88	54	88	53	88	53	88	52	88	52	88	51	88	51	88	50	88	49
30	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
II	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	57	48	58	2	58	15	58	29	58	42	58	55	59	7	59	20	59	32	59	43
1	58	51	59	4	59	17	59	30	59	43	59	55	60	7	60	20	60	32	60	42
2	59	53	60	6	60	19	60	31	60	44	60	56	61	8	61	20	61	32	61	42
3	60	56	61	8	61	21	61	33	61	46	61	57	62	9	62	21	62	32	62	41
4	61	59	62	11	62	23	62	35	62	48	62	58	63	9	63	21	63	32	63	41
5	63	3	63	14	63	25	63	37	63	50	63	59	64	10	64	21	64	32	64	41
6	64	6	64	17	64	28	64	39	64	52	65	1	65	11	65	22	65	32	65	40
7	65	9	65	20	65	31	65	41	65	54	66	2	66	12	66	22	66	32	66	40
8	66	13	66	23	66	34	66	44	66	56	67	4	67	13	67	23	67	33	67	40
9	67	17	67	27	67	37	67	46	67	58	68	6	68	15	68	24	68	33	68	40
10	68	21	68	30	68	40	68	49	68	59	69	7	69	16	69	25	69	33	69	40
11	69	25	69	34	69	43	69	52	70	1	70	9	70	17	70	26	70	34	70	40
12	70	29	70	38	70	46	70	55	71	3	71	11	71	19	71	27	71	35	71	41
13	71	34	71	42	71	49	71	58	72	5	72	13	72	21	72	28	72	36	72	41
14	72	38	72	46	72	53	73	1	73	8	73	15	73	23	73	30	73	37	73	42
15	73	43	73	50	73	57	74	4	74	11	74	18	74	25	74	32	74	38	74	43
16	74	47	74	54	75	1	75	7	75	14	75	20	75	27	75	33	75	39	75	44
17	75	52	75	58	76	5	76	11	76	17	76	23	76	29	76	35	76	40	76	45
18	76	57	77	3	77	9	77	15	77	20	77	26	77	31	77	37	77	42	77	46
19	78	2	78	7	78	13	78	18	78	23	78	28	78	33	78	38	78	43	78	47
20	79	7	79	12	79	17	79	21	79	26	79	31	79	33	79	40	79	44	79	48
21	80	12	80	17	80	21	80	25	80	29	80	34	80	38	80	42	80	46	80	49
22	81	17	81	21	81	25	81	28	81	32	81	36	81	40	81	44	81	47	81	50
23	82	22	82	25	82	29	82	32	82	35	82	39	82	42	82	46	82	48	82	51
24	83	28	83	30	83	33	83	36	83	39	83	42	83	45	83	48	83	50	83	52
25	84	33	84	35	84	37	84	40	84	42	84	45	84	47	84	50	84	51	84	53
26	85	38	85	40	85	45	85	44	85	45	85	48	85	49	85	52	85	53	85	54
27	86	44	86	45	86	46	86	48	86	49	86	51	85	52	86	54	86	55	86	55
28	87	49	87	50	87	50	87	52	87	52	87	54	87	54	87	56	87	56	87	57
29	88	55	88	55	88	55	88	56	88	56	88	57	88	57	88	58	88	58	88	58
30	90	0	90	0	90	0	90	0	90	0	89	0	90	0	90	0	89	0	90	0

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♋	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M	D.	M.	D.	M.
0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0
1	91	5	91	6	91	7	91	7	91	7	91	8	91	9	91	9	91	10	91	11
2	92	11	92	12	92	14	92	14	92	15	92	16	92	18	92	18	92	20	92	22
3	93	16	93	18	93	20	93	21	93	23	93	24	93	26	93	27	93	29	93	32
4	94	22	94	24	94	27	94	28	94	30	94	32	94	35	94	36	94	39	94	42
5	95	27	95	30	95	33	95	35	95	38	95	40	95	43	95	45	95	49	95	52
6	96	32	96	36	96	39	96	42	96	45	96	48	96	51	96	54	96	58	97	2
7	97	38	97	42	97	45	97	49	97	52	97	56	98	0	98	3	98	8	98	12
8	98	43	98	47	98	51	98	55	99	0	99	4	99	8	99	12	99	17	99	21
9	99	48	99	52	99	57	100	1	100	7	100	12	100	16	100	21	100	26	100	31
10	100	53	100	58	101	3	101	8	101	14	101	19	101	24	101	30	101	35	101	40
11	[illegible]	[illegible]	102	4	102	9	102	15	102	21	102	26	102	32	102	38	102	44	102	50
12	103	3	103	9	103	15	103	21	103	27	103	33	103	40	103	46	103	53	103	59
13	104	8	104	14	104	21	104	27	104	34	104	41	104	48	104	55	105	2	105	9
14	105	13	105	19	105	27	105	33	105	41	105	48	105	56	106	3	106	11	106	18
15	106	17	106	24	106	33	106	39	106	47	106	55	107	3	107	11	107	19	107	27
16	107	22	107	29	107	38	107	45	107	53	108	2	108	11	108	19	108	28	108	36
17	108	26	108	34	108	43	108	53	108	59	109	9	109	18	109	27	109	36	109	45
18	109	31	109	39	109	48	109	57	110	5	110	15	110	25	110	34	110	44	110	54
19	110	35	110	34	110	53	111	3	111	12	111	22	111	32	111	42	112	52	112	2
20	111	39	111	49	111	58	112	8	112	18	112	29	112	35	112	50	113	0	113	11
21	112	43	112	53	113	3	113	13	113	24	113	35	113	46	113	57	114	8	114	19
22	113	47	113	57	114	8	114	18	114	30	114	41	114	52	115	4	115	15	115	27
23	114	51	115	1	115	13	115	23	115	35	115	47	115	58	116	10	116	22	116	35
24	115	54	116	5	116	17	116	28	116	41	116	52	117	4	117	17	117	29	117	42
25	116	57	117	9	117	21	117	33	117	46	117	58	118	10	118	23	118	36	118	49
26	118	1	118	13	118	25	118	38	118	51	119	3	119	16	119	29	119	43	119	56
27	119	4	119	16	119	29	119	42	119	55	120	8	120	22	120	35	129	49	121	3
28	120	7	120	19	120	33	120	46	120	59	121	13	121	27	121	41	121	55	122	10
29	121	9	121	22	121	36	121	50	122	3	122	18	122	32	122	47	123	1	123	16
30	122	12	122	25	122	39	122	53	123	7	123	22	123	37	123	52	124	7	124	22

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♋	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0
1	91	5	91	5	91	5	91	4	91	4	91	3	91	3	91	2	91	2	91	2
2	92	11	92	10	92	10	92	8	92	8	92	6	92	6	92	4	92	4	92	3
3	93	16	93	15	93	14	93	12	93	11	93	9	93	8	93	6	93	5	93	5
4	94	22	94	20	94	19	94	16	94	15	94	12	94	[illegible]	94	8	94	7	94	6
5	95	27	95	25	95	23	95	20	95	18	95	15	95	13	95	10	95	9	95	7
6	96	32	96	30	96	27	96	24	96	21	96	18	96	15	96	12	96	10	96	8
7	97	38	97	35	97	31	97	28	97	25	97	21	97	18	97	14	97	12	97	9
8	98	43	98	39	98	35	98	32	98	28	98	24	98	20	98	16	98	13	98	10
9	99	48	99	43	99	39	99	35	99	31	99	26	99	22	99	18	99	14	99	11
10	100	53	100	48	100	43	100	39	100	34	100	29	100	25	100	20	100	16	100	12
11	101	58	101	53	101	47	101	42	101	37	101	32	101	27	101	22	101	17	101	12
12	103	3	102	57	102	51	102	45	102	40	102	34	102	29	102	23	102	18	102	13
13	104	8	104	2	103	55	103	49	103	43	103	37	103	31	103	25	103	20	103	14
14	105	13	105	6	104	59	104	52	104	46	104	40	104	33	104	27	104	21	104	14
15	106	17	106	10	106	3	105	56	105	49	105	42	105	35	105	28	105	22	105	15
16	107	22	107	14	107	7	106	59	106	52	106	45	106	37	106	30	106	23	106	15
17	108	26	108	18	108	11	108	2	107	55	107	47	107	39	107	32	107	24	107	15
18	109	31	109	22	109	14	109	5	108	57	108	49	108	41	108	33	108	25	108	16
19	110	35	110	26	110	17	110	8	110	0	109	51	109	43	109	34	109	26	109	16
20	111	39	111	30	111	20	111	11	111	2	110	53	110	44	110	35	110	27	110	16
21	112	43	112	33	112	23	112	13	112	4	111	54	111	45	111	36	111	27	111	16
22	113	47	113	37	113	26	113	16	113	6	112	56	112	47	112	37	112	[illegible]	112	17
23	114	51	114	40	114	29	114	19	114	8	113	58	113	48	113	38	113	[illegible]	[illegible]	17
24	115	54	115	43	115	32	115	21	115	10	114	59	114	49	114	38	114	28	[illegible]	17
25	116	57	116	46	116	35	116	23	116	12	116	1	115	50	115	39	115	28	115	17
26	118	1	117	49	117	37	117	25	117	14	117	2	116	51	116	39	116	28	116	17
27	119	4	118	51	118	39	118	27	118	15	118	3	117	52	117	39	117	28	117	16
28	120	7	119	54	119	41	119	29	119	16	119	4	118	52	118	40	118	28	118	16
29	121	9	120	56	120	43	120	30	120	17	120	5	119	53	119	40	119	28	119	15
30	122	12	121	58	121	45	121	31	121	18	121	5	120	53	120	40	120	28	120	15

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♌	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	122	12	122	25	122	39	122	53	123	7	123	22	123	37	123	52	124	7	124	22
1	123	14	123	28	123	42	123	57	124	11	124	26	124	42	124	57	125	12	125	28
2	124	16	124	31	124	45	125	0	125	15	125	30	125	46	126	2	126	17	126	33
3	125	18	125	33	125	48	126	3	126	18	126	34	126	50	127	6	127	22	127	38
4	126	20	126	36	126	51	127	6	127	22	127	38	127	54	128	11	128	27	128	43
5	127	22	127	38	127	54	128	9	128	25	128	42	128	58	129	15	129	32	129	48
6	128	24	128	40	128	56	129	12	129	28	129	45	130	2	130	19	130	36	130	53
7	129	25	129	42	129	58	130	14	130	31	130	48	131	5	131	23	131	40	131	58
8	130	26	130	43	131	0	131	16	131	33	131	51	132	8	132	26	132	44	133	2
9	131	27	131	44	132	1	132	18	132	35	132	53	133	11	133	29	133	47	134	6
10	132	28	132	45	133	2	133	20	133	37	133	55	134	14	134	22	134	50	135	9
11	133	28	133	46	134	3	134	21	134	39	134	57	135	16	135	35	135	53	136	12
12	134	29	134	47	135	4	135	22	135	40	135	59	136	18	136	37	136	56	137	15
13	135	29	135	47	136	5	136	23	136	41	137	0	137	20	137	39	137	58	138	17
14	136	29	136	47	137	6	137	24	137	42	138	1	138	21	138	41	139	0	139	20
15	137	29	137	47	134	6	138	24	138	43	139	2	139	22	139	42	140	2	140	22
16	138	29	138	47	139	6	139	25	139	44	140	3	140	24	140	44	141	4	141	24
17	139	28	139	47	140	6	140	25	140	45	141	4	141	25	141	45	142	6	142	26
18	140	28	140	46	141	6	141	25	141	45	142	5	142	26	142	46	143	7	143	27
19	141	27	141	46	142	6	142	25	142	45	143	6	143	27	143	47	144	8	144	28
20	142	26	142	45	143	5	143	25	143	45	144	6	144	27	144	48	145	9	145	29
21	143	25	143	44	144	4	144	24	144	45	145	6	145	27	145	48	146	9	146	30
22	144	23	144	43	145	3	145	24	145	45	146	6	146	27	146	48	147	10	147	31
23	145	22	145	42	146	2	146	23	146	44	147	5	147	27	147	48	148	10	148	31
24	146	20	146	40	147	1	147	22	147	43	148	4	148	26	148	48	149	10	149	31
25	147	18	147	39	148	0	148	21	148	42	149	3	149	25	149	47	150	10	150	31
26	148	16	148	37	148	58	149	19	149	41	150	2	150	24	150	46	151	9	151	31
27	149	14	149	35	149	56	150	17	150	39	151	1	151	23	151	45	152	8	152	31
28	150	11	150	33	150	54	151	15	151	37	151	59	152	22	152	44	153	7	153	29
29	151	9	151	30	151	52	152	13	152	3[illegible]	152	57	153	20	153	43	154	6	154	28
30	152	6	152	27	152	49	153	11	153	33	153	55	154	18	154	4	155	4	155	27

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♌	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	122	12	121	58	121	45	121	31	121	18	121	5	120	53	120	40	120	28	120	15
1	123	14	123	0	122	47	122	33	122	19	122	6	121	53	121	40	121	29	121	15
2	124	16	124	2	123	48	123	34	123	20	123	6	122	53	122	40	122	27	122	14
3	125	19	125	3	124	49	124	35	124	21	124	7	123	53	123	39	123	26	223	13
4	125	20	126	5	125	51	125	36	125	22	215	7	124	53	124	39	124	25	124	12
5	126	22	127	7	126	52	126	36	126	22	126	7	125	52	125	38	125	24	125	11
6	128	24	128	8	127	53	127	37	127	22	127	7	126	52	126	37	126	23	126	9
7	129	25	129	9	128	54	128	37	128	22	128	7	127	51	127	36	127	22	127	7
8	130	26	130	10	129	54	129	37	129	22	129	6	128	50	128	35	128	20	128	3
9	131	27	131	10	130	54	130	37	130	21	130	5	129	49	129	33	129	18	129	5
10	132	28	132	11	131	54	131	37	131	21	131	4	130	48	130	32	130	17	130	1
11	133	28	133	11	132	54	132	37	132	20	132	3	131	47	131	31	131	15	130	58
12	134	29	134	11	133	54	133	37	133	19	133	2	132	46	132	29	132	13	131	56
13	135	29	135	11	134	54	134	36	134	18	134	1	133	45	133	27	133	11	132	54
14	136	29	136	11	135	53	135	35	135	17	135	0	134	43	134	25	134	9	133	51
15	137	29	137	10	136	52	136	34	136	16	135	58	135	41	135	23	135	6	134	48
16	138	29	138	10	137	51	137	33	137	15	136	57	136	39	136	21	136	4	135	45
17	139	28	139	9	138	50	138	32	138	14	137	55	137	37	137	19	137	2	136	42
18	140	27	140	8	139	49	139	30	139	13	138	53	138	35	138	17	137	59	137	39
19	141	27	141	7	140	48	140	29	140	10	139	51	139	33	139	15	138	56	138	36
20	142	26	142	6	141	47	141	27	141	8	140	49	140	31	140	12	139	53	139	33
21	143	24	143	4	142	45	142	25	142	6	141	47	141	28	141	9	140	50	140	30
22	144	23	144	3	143	33	143	23	143	4	142	45	142	25	142	6	141	47	141	27
23	145	22	145	1	144	41	144	21	144	2	143	42	143	22	143	3	142	44	142	24
24	146	20	145	59	145	39	145	19	144	59	144	39	144	19	143	59	143	40	143	20
25	147	18	146	57	146	37	146	17	145	56	145	36	145	16	144	56	144	37	144	16
26	148	16	147	55	147	35	147	14	146	53	146	33	146	13	145	53	145	33	145	12
27	149	14	148	53	148	32	148	11	147	50	147	29	147	9	146	49	146	29	146	8
28	150	11	149	50	149	29	149	8	148	47	148	26	148	6	147	46	147	25	147	4
29	151	9	150	47	150	26	150	5	149	44	149	23	149	3	148	42	148	21	148	0
30	152	6	151	44	151	23	151	2	150	41	150	20	149	59	149	38	149	17	148	56

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♍	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	152	6	152	27	152	49	153	11	153	33	153	55	154	18	154	41	155	4	155	27
1	153	4	153	25	153	47	154	9	154	31	154	53	155	16	155	39	156	3	156	26
2	154	1	154	22	154	44	155	6	155	29	155	51	156	14	156	37	157	1	157	25
3	154	58	155	19	155	41	156	3	156	26	156	49	157	12	157	35	157	59	158	23
4	155	54	156	16	156	39	157	1	157	24	157	47	158	10	158	33	158	57	159	21
5	156	51	157	13	157	36	157	58	158	21	158	44	159	8	159	31	159	55	160	19
6	157	48	158	10	158	33	158	55	159	18	159	41	160	5	160	28	160	52	161	16
7	158	44	159	7	159	30	159	51	160	15	160	38	161	2	161	25	161	49	162	13
8	159	40	160	4	160	27	160	49	161	12	161	35	161	59	162	22	162	46	163	10
9	160	37	161	0	161	23	161	46	162	9	162	32	162	56	163	19	163	43	164	7
10	161	33	161	56	162	19	162	42	163	6	163	29	163	53	164	16	164	40	165	4
11	162	29	162	52	163	15	163	38	164	2	164	25	164	49	165	13	165	37	166	1
12	163	25	163	50	164	11	164	34	164	58	165	21	165	45	166	9	166	33	166	58
13	164	20	164	44	165	7	165	30	165	54	166	18	166	42	167	6	167	30	167	54
14	165	16	165	40	166	3	166	26	166	50	167	14	167	38	168	2	168	26	168	50
15	166	12	166	35	166	59	167	22	167	46	168	10	168	34	168	58	169	22	169	46
16	167	7	167	31	167	55	168	18	168	42	169	6	169	30	169	54	170	18	170	42
17	168	3	168	27	168	51	169	14	169	38	170	2	170	26	170	50	171	14	171	38
18	168	58	169	23	169	46	170	9	170	33	170	57	171	21	171	45	172	9	172	34
19	169	54	170	18	170	42	171	5	171	29	171	53	172	17	172	41	173	5	173	30
20	170	49	171	13	171	37	172	1	172	25	172	49	173	13	173	37	174	1	174	25
21	171	44	172	8	172	32	172	56	173	20	173	44	174	8	174	32	174	56	175	21
22	172	39	173	3	173	27	173	51	174	15	174	39	175	3	175	27	175	51	176	16
23	173	35	173	58	174	22	174	46	175	10	145	34	175	58	176	22	176	46	177	12
24	174	30	174	53	175	17	175	41	176	5	176	29	176	53	177	17	177	41	178	7
25	175	25	175	48	176	12	176	36	177	0	177	24	177	48	178	12	178	36	179	2
26	176	20	176	43	177	7	177	31	177	56	178	19	178	43	179	7	179	31	179	57
27	177	15	177	38	178	2	178	26	178	50	179	14	179	38	180	2	180	26	180	52
28	178	10	178	33	178	57	179	21	179	45	180	9	180	33	180	57	181	22	181	47
29	179	5	179	28	179	52	180	16	180	40	181	4	181	28	181	52	182	17	182	42
30	180	0	180	23	180	47	181	11	181	35	181	59	182	23	182	47	183	12	183	37

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
172	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	M.	D.	D.	M.
0	152	6	151	44	151	23	151	2	150	41	150	20	149	59	149	38	149	17	148	56
1	153	4	152	41	152	20	151	59	151	38	151	16	150	55	150	34	150	13	149	52
2	154	1	153	38	153	17	152	55	152	34	152	12	151	51	151	30	151	9	150	48
3	154	58	154	35	154	13	153	51	153	30	153	8	152	47	152	25	152	4	151	43
4	155	54	155	32	155	10	154	48	154	26	154	4	153	43	153	21	153	0	152	38
5	156	51	156	29	156	7	155	44	155	22	155	0	154	39	154	17	153	55	153	33
6	157	48	157	25	157	3	156	40	156	18	155	56	155	34	155	12	154	50	154	28
7	158	44	158	22	157	59	157	36	157	14	156	52	156	30	156	8	155	46	155	23
8	159	40	159	18	158	55	158	32	158	10	157	48	157	26	157	3	156	41	156	18
9	160	37	160	14	159	51	159	28	159	6	158	43	158	21	157	58	157	36	157	13
10	161	33	161	10	160	47	160	24	160	2	159	39	159	17	158	54	158	31	158	8
11	162	29	162	6	161	43	161	20	160	58	160	35	160	12	159	49	159	26	159	3
12	163	25	163	2	162	39	162	16	161	53	161	30	161	7	160	44	160	21	159	58
13	164	20	163	58	163	35	163	12	162	49	162	25	162	2	161	39	161	16	160	53
14	165	16	164	53	164	30	164	7	163	44	163	20	162	57	162	34	162	11	161	48
15	166	12	145	48	165	25	165	2	164	39	164	15	163	52	163	29	163	6	162	43
16	167	7	166	44	166	21	165	57	165	34	165	10	164	47	164	24	164	1	163	38
17	168	3	167	40	167	17	166	52	166	29	166	5	165	42	165	19	164	56	164	33
18	168	58	168	35	168	12	167	47	167	24	167	0	166	37	166	13	165	51	165	28
19	169	54	169	31	169	7	168	43	168	19	167	55	167	32	167	8	166	46	166	23
20	170	49	170	26	170	2	169	38	169	14	168	50	168	27	168	3	167	41	167	17
21	171	44	171	21	170	57	170	33	170	9	169	45	169	22	168	58	168	35	168	12
22	172	39	172	16	171	52	171	28	171	4	170	40	170	17	169	53	169	30	169	7
23	173	35	173	11	172	47	172	23	171	59	171	35	171	12	170	48	170	25	170	1
24	174	30	174	6	173	42	173	18	172	54	172	30	172	7	171	43	171	20	170	56
25	175	25	175	2	174	38	174	14	173	50	173	26	173	2	172	38	172	15	171	51
26	176	20	175	57	175	33	175	9	174	45	174	21	173	57	173	33	173	10	172	45
27	177	15	176	52	176	28	176	4	175	40	175	16	174	52	174	28	174	4	173	40
28	178	10	177	47	177	23	176	59	176	35	176	11	175	47	175	23	174	59	174	34
29	179	5	178	42	178	18	177	54	177	30	177	6	176	42	176	18	175	54	175	29
30	180	0	179	37	179	13	178	49	178	25	178	1	177	37	177	13	176	48	176	24

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♎	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M	D.	M.	D.	M.
0	180	0	180	23	180	47	181	11	181	35	181	59	182	23	182	47	183	12	183	37
1	180	55	181	18	181	42	182	6	182	30	182	54	183	18	183	42	184	6	184	31
2	181	50	183	13	182	37	183	1	183	25	183	49	184	13	184	37	185	1	185	25
3	182	45	183	8	183	32	183	56	184	20	184	44	185	8	185	32	185	56	186	20
4	183	40	184	3	184	27	184	51	185	15	185	39	186	3	186	27	186	50	187	14
5	184	25	184	58	185	22	185	46	186	10	186	34	186	58	187	22	187	45	118	8
6	185	30	185	54	186	18	186	42	187	6	187	30	187	53	188	17	188	40	189	3
7	186	25	186	49	187	13	187	37	188	1	188	25	188	48	189	12	189	35	189	57
8	187	21	187	44	188	8	188	32	188	56	189	20	189	43	190	7	190	30	190	52
9	188	16	188	39	189	3	189	27	189	51	190	15	190	38	191	2	191	25	191	46
10	189	11	189	34	189	58	190	22	190	46	191	10	191	33	191	57	192	19	192	41
11	190	6	190	29	190	53	191	17	191	41	192	5	192	28	192	52	193	14	193	36
12	191	2	191	25	191	48	192	13	192	36	193	0	193	23	193	47	194	9	194	31
13	191	57	192	20	192	43	193	8	193	31	193	55	194	18	194	41	195	4	195	26
14	192	53	193	16	193	39	194	3	194	26	194	50	195	13	195	36	195	59	196	21
15	193	48	194	12	194	35	194	58	195	21	195	45	196	8	196	31	196	54	197	16
16	194	44	195	7	195	30	195	53	196	16	196	40	197	3	197	26	197	49	198	11
17	195	40	196	2	196	25	196	48	197	11	197	35	197	58	198	21	198	44	199	6
18	196	35	196	58	197	21	197	44	198	7	198	30	198	53	199	16	199	39	200	1
19	197	31	197	54	198	17	198	40	199	2	199	25	199	48	200	11	200	34	200	56
20	198	27	198	50	199	13	199	36	199	58	200	21	200	43	201	7	201	29	201	51
21	199	23	199	46	200	9	200	32	200	54	201	16	201	39	202	2	202	21	202	46
22	200	20	200	42	201	5	201	28	201	50	202	12	202	34	201	57	203	19	203	41
23	201	16	201	38	202	1	202	24	202	46	203	8	203	30	203	52	204	14	204	36
24	202	12	202	35	202	57	203	20	203	42	204	4	204	26	204	48	205	10	205	31
25	203	9	203	31	203	53	204	16	204	38	205	0	205	21	205	43	206	5	206	26
26	204	6	204	29	204	50	205	22	205	34	205	56	206	17	206	39	207	0	207	22
27	205	2	205	25	205	47	206	9	206	30	206	52	207	13	207	35	207	56	208	17
28	205	59	206	22	206	43	207	5	207	26	207	48	208	9	208	30	208	51	209	12
29	206	57	207	19	207	40	208	1	208	22	208	44	209	5	209	26	209	47	210	8
30	207	54	208	16	208	37	208	58	209	19	209	40	210	1	210	22	210	43	211	4

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♎	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	180	0	179	37	179	13	178	49	178	25	178	1	177	37	177	13	176	48	176	24
1	180	55	180	32	180	8	179	44	179	20	178	56	178	32	178	8	177	43	177	19
2	181	50	181	27	181	3	180	39	180	15	179	51	179	27	179	3	178	38	178	14
3	182	45	182	22	181	58	181	34	181	20	180	46	180	22	179	58	179	34	179	9
4	183	40	183	17	182	53	182	29	182	5	181	41	181	17	180	53	180	29	180	5
5	184	35	184	11	183	48	183	24	183	0	182	36	182	12	181	48	181	24	181	0
6	185	30	185	7	184	43	184	19	183	55	183	31	183	7	182	43	182	19	181	55
7	186	25	186	2	185	38	185	14	184	50	184	26	184	2	183	38	183	14	182	50
8	187	21	186	57	186	33	186	9	185	45	185	21	184	57	184	33	184	9	183	45
9	188	16	187	52	187	28	187	4	186	40	186	16	185	52	185	28	185	4	184	41
10	189	11	188	47	188	23	187	59	187	35	187	11	186	47	186	23	185	59	185	36
11	190	6	189	42	189	18	188	55	188	31	188	7	187	43	187	18	186	55	186	32
12	191	2	190	38	190	14	189	51	189	27	189	3	188	39	188	14	187	51	187	27
13	191	57	191	33	191	9	190	46	190	22	189	58	189	34	189	10	188	46	188	23
14	192	53	192	29	192	5	191	42	191	18	190	54	190	30	190	6	189	42	189	18
15	193	48	193	25	193	1	192	38	192	14	191	50	191	26	191	2	190	38	190	14
16	194	44	194	20	193	57	193	34	193	10	192	46	192	22	191	58	191	34	191	10
17	195	40	195	16	194	53	194	30	194	6	193	42	193	18	192	54	192	30	192	6
18	196	35	196	12	195	49	195	26	195	2	194	39	194	15	193	51	193	27	193	2
19	197	31	197	8	196	45	196	22	195	58	195	35	195	11	194	47	194	23	193	5
20	198	27	198	4	197	41	197	18	196	54	196	31	196	7	195	44	195	20	194	5
21	199	23	199	0	198	37	198	14	197	51	197	28	197	4	196	41	196	17	195	5
22	200	20	199	56	199	33	199	11	198	48	198	25	198	1	197	38	197	14	196	4
23	201	16	200	53	200	30	200	8	199	45	199	22	198	58	198	35	198	11	197	4
24	202	12	201	50	201	27	201	5	200	42	200	19	199	55	199	32	199	8	198	4
25	203	9	202	47	203	24	202	2	201	39	201	16	200	52	200	29	200	5	199	4
26	204	6	203	44	203	21	202	59	202	36	202	13	201	50	201	27	201	3	200	3
27	205	2	204	41	204	19	203	57	203	34	203	11	202	48	202	25	202	1	201	3
28	205	59	205	38	205	16	204	54	204	31	204	9	203	46	203	23	202	59	202	3
29	206	57	206	35	206	13	205	51	205	29	205	7	204	44	204	21	203	57	203	3
30	207	54	207	33	207	11	206	49	206	27	206	5	205	42	205	19	204	56	204	3

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♏	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	207	54	208	16	208	37	208	58	209	19	209	40	210	1	210	22	210	43	211	4
1	208	51	209	13	209	34	209	55	110	16	210	37	210	57	211	18	211	39	211	59
2	209	49	210	10	210	31	210	52	211	13	211	34	211	54	212	14	212	35	212	55
3	210	46	211	17	211	28	211	49	212	10	212	31	212	51	213	11	213	31	213	41
4	211	44	212	5	212	25	212	46	213	7	213	27	213	47	214	7	214	27	214	47
5	212	42	213	3	213	23	213	43	214	4	214	24	214	44	215	4	215	23	215	43
6	213	40	214	1	214	21	214	41	215	1	215	21	215	41	216	1	216	20	216	39
7	214	38	214	59	215	19	215	39	215	58	216	18	216	38	216	57	217	16	217	35
8	215	37	215	57	216	17	216	37	216	56	217	15	217	35	217	54	218	13	218	32
9	216	36	216	56	217	15	217	35	217	54	218	13	218	32	218	51	219	10	219	29
10	217	34	217	54	218	13	218	33	218	52	219	11	219	29	219	48	220	7	220	26
11	218	33	218	53	219	12	219	31	219	50	220	9	220	27	220	45	221	4	221	23
12	219	33	219	52	220	11	220	30	220	48	221	7	221	25	221	43	222	1	222	20
13	220	32	220	51	221	10	221	28	221	46	222	5	222	23	222	41	222	58	223	17
14	221	31	221	50	222	9	222	27	222	45	223	3	223	21	223	39	[illegible]	56	224	14
15	222	31	222	50	223	8	223	26	223	44	224	2	224	19	224	37	224	54	225	11
16	223	31	223	49	224	7	224	25	224	43	225	0	225	17	225	35	225	51	226	8
17	224	31	224	49	225	6	225	24	225	42	22	59	226	15	226	33	226	49	227	5
18	225	31	225	49	226	6	226	23	226	41	226	58	227	14	227	31	227	47	228	3
19	226	32	226	49	227	6	227	23	227	40	227	57	228	13	228	29	228	45	229	1
20	227	32	227	49	228	6	228	23	228	39	228	56	229	12	229	28	229	43	229	59
21	228	33	228	50	229	6	229	23	229	39	229	55	230	11	230	27	230	41	230	57
22	229	34	229	50	230	6	230	23	230	38	230	54	231	10	231	25	231	40	231	55
23	230	35	230	51	231	6	231	23	231	38	231	53	232	9	232	24	232	38	232	53
24	231	36	231	52	232	7	232	23	232	38	232	53	233	8	233	23	233	37	233	51
25	232	38	232	53	233	8	233	24	233	38	233	53	234	8	234	22	234	36	234	50
26	233	40	233	55	234	9	234	24	234	38	234	53	235	7	235	21	235	35	235	49
27	234	41	234	57	235	11	235	25	235	39	235	53	236	7	236	21	236	34	236	47
28	235	43	235	58	236	12	236	26	236	40	236	54	237	7	237	20	237	33	237	46
29	236	46	237	0	237	14	237	27	237	41	237	54	238	7	238	20	238	32	238	45
30	237	48	238	2	238	15	238	29	238	42	238	55	239	7	239	20	239	32	239	44

TABLES

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♏	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	207	54	207	33	207	11	206	49	206	27	206	5	205	42	205	19	204	56	204	33
1	208	51	208	30	208	8	207	47	207	25	207	3	206	40	206	17	205	54	205	31
2	209	49	209	27	209	6	208	45	208	23	208	1	207	38	207	16	206	53	206	30
3	210	46	210	25	210	4	209	43	209	21	208	59	208	37	208	15	207	52	207	29
4	211	44	211	23	211	2	210	41	210	18	209	58	209	36	209	14	208	51	208	28
5	212	42	212	21	212	0	211	39	210	19	210	57	210	35	210	13	209	50	209	28
6	213	30	213	20	212	59	212	38	212	17	211	56	211	34	211	12	210	50	210	28
7	214	38	214	18	213	58	213	37	213	16	212	55	212	33	212	12	211	50	211	28
8	215	37	215	17	214	57	214	36	214	15	213	54	213	33	213	12	212	50	212	28
9	216	36	216	16	215	56	215	36	215	15	214	54	214	33	214	12	213	51	213	29
10	217	34	217	15	216	55	216	35	216	15	215	54	215	33	215	12	214	51	214	30
11	218	33	218	14	217	55	217	35	217	15	216	54	216	33	216	13	215	52	215	31
12	219	33	219	14	218	54	218	35	218	15	217	55	217	34	217	14	216	53	216	32
13	220	32	220	13	219	54	219	35	219	15	218	56	218	35	218	15	217	54	217	34
14	221	31	221	13	220	54	220	35	220	16	219	57	219	36	219	16	218	56	218	36
15	222	31	222	13	221	54	221	36	221	17	220	58	220	38	220	18	219	58	219	38
16	223	31	223	13	222	54	222	36	222	18	221	59	221	39	221	19	221	0	220	40
17	224	31	224	13	223	55	223	37	223	19	223	0	222	40	222	21	222	2	221	43
18	225	31	225	14	224	56	224	38	224	20	224	1	223	42	223	23	223	4	222	46
19	226	32	226	14	225	57	225	39	225	21	225	3	224	44	224	25	224	7	223	46
20	227	32	227	15	226	58	226	40	226	23	226	5	225	46	225	28	225	10	224	52
21	228	33	228	16	227	59	227	42	227	25	227	7	226	49	226	31	226	13	225	55
22	229	34	229	17	229	0	228	44	228	27	228	9	227	52	227	34	227	16	226	59
23	230	35	230	18	230	2	229	46	229	29	229	12	228	55	228	37	228	20	228	3
24	231	36	231	20	231	4	230	48	230	32	230	15	229	58	229	41	229	24	229	7
25	332	38	232	22	232	6	231	51	231	35	231	18	231	2	230	45	230	28	230	12
26	233	40	233	24	233	9	232	54	232	38	232	22	232	6	231	49	231	33	231	17
27	234	41	234	27	234	12	233	57	233	42	233	26	233	10	232	54	232	38	232	22
28	235	43	235	29	235	15	235	0	234	45	234	30	234	14	233	58	233	43	233	27
29	236	46	236	32	236	18	236	3	235	49	235	34	235	18	235	3	234	48	234	32
30	237	48	237	36	237	21	237	7	236	53	236	38	236	23	236	8	235	55	235	38

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♐	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	237	48	238	2	238	15	238	29	238	42	238	55	239	7	239	20	239	32	239	44
1	238	51	239	4	239	17	239	30	239	43	239	55	240	7	240	20	240	32	240	44
2	239	53	240	6	240	19	240	31	240	44	240	56	241	8	241	20	241	32	241	43
3	240	56	241	9	241	21	241	33	241	45	241	57	242	9	242	21	242	32	242	43
4	241	59	242	11	242	23	242	35	242	46	242	58	243	9	243	21	243	32	243	43
5	243	3	243	14	243	25	243	37	243	48	243	59	244	10	244	21	244	32	244	43
6	244	6	244	17	244	28	244	39	244	50	245	1	245	11	245	22	245	32	245	43
7	245	9	245	20	245	31	245	41	245	52	246	2	246	12	246	22	246	32	246	43
8	246	13	246	23	246	34	246	44	246	54	247	4	247	13	247	23	247	33	247	43
9	247	17	247	27	247	37	247	47	247	56	248	6	248	15	248	24	248	33	248	43
10	248	21	248	30	248	40	248	49	248	58	249	7	249	16	249	25	249	33	249	43
11	249	25	249	34	249	43	249	52	250	0	250	9	250	17	250	26	250	34	250	44
12	250	20	250	38	250	46	250	55	251	3	251	11	251	19	251	27	251	35	251	44
13	251	34	251	42	251	49	251	58	252	5	252	13	252	21	252	28	252	36	252	44
14	252	38	252	46	252	53	253	1	253	8	253	15	253	23	253	30	253	37	253	45
15	253	43	253	50	253	57	254	4	254	11	254	18	254	25	254	32	254	38	254	45
16	254	47	254	54	255	1	255	7	255	14	255	20	255	27	255	33	255	39	255	46
17	255	52	255	58	256	5	256	11	256	17	256	22	256	[illegible]	256	35	256	40	256	47
18	256	57	257	3	257	9	257	15	257	20	257	25	257	31	257	37	257	42	257	48
19	258	2	258	7	258	13	258	18	254	23	258	28	258	33	258	38	258	43	258	49
20	259	7	259	12	259	17	259	21	259	26	259	31	259	35	259	40	259	44	259	50
21	260	12	260	17	260	21	260	25	260	29	260	34	260	38	260	42	260	46	260	51
22	261	17	261	21	261	25	261	28	261	32	261	36	261	40	261	44	261	47	261	52
23	262	22	262	25	262	29	262	32	262	35	262	39	262	42	262	46	262	48	262	54
24	263	28	263	30	263	33	263	36	263	39	263	42	263	45	263	48	263	50	263	54
25	264	33	264	35	264	37	264	40	264	42	264	45	264	47	264	50	264	51	264	55
26	265	38	265	40	265	41	265	44	265	45	265	48	265	49	265	52	265	53	265	56
27	266	44	266	45	266	46	266	48	266	49	226	51	266	52	266	54	266	55	266	57
28	267	49	267	50	267	50	267	52	267	52	267	54	267	54	267	56	267	56	267	58
29	268	55	268	55	268	55	268	56	268	56	268	57	268	57	268	58	268	58	268	59
30	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♐	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	M.	D.	D.	M.
0	237	48	237	35	237	21	237	7	236	53	236	38	236	23	236	8	235	53	235	38
1	238	51	238	38	238	24	238	10	237	57	237	42	237	28	237	13	236	59	236	45
2	239	53	239	41	239	28	239	14	239	1	238	47	238	33	238	19	238	5	237	51
3	240	56	240	44	240	31	240	18	240	5	239	52	239	38	239	25	239	11	238	58
4	241	59	241	47	241	35	241	22	241	10	240	57	240	44	240	31	240	17	240	5
5	243	3	242	51	242	39	242	27	242	15	242	2	241	50	241	37	241	24	241	12
6	244	6	243	55	243	43	243	32	243	20	243	8	242	56	242	44	242	31	242	19
7	245	9	244	59	244	47	244	37	244	25	244	13	244	2	243	50	243	38	243	26
8	246	13	246	3	245	52	245	42	245	30	245	19	245	8	244	56	244	45	244	34
9	247	17	247	7	246	57	246	47	246	36	246	25	246	14	246	3	245	52	245	41
10	248	21	248	11	248	2	247	52	247	42	247	31	247	21	247	10	247	0	246	49
11	249	25	249	16	249	7	248	57	248	48	248	38	248	28	248	18	248	8	247	57
12	250	29	250	21	250	12	250	3	249	54	249	45	249	35	249	26	249	16	249	6
13	251	34	251	26	251	17	251	9	251	0	250	51	250	42	250	33	250	24	250	14
14	252	38	252	31	252	22	252	15	252	6	251	58	251	49	251	41	251	32	251	23
15	253	43	253	36	253	28	253	21	253	13	253	5	252	57	252	49	252	41	252	32
16	254	47	254	41	254	33	254	27	254	19	254	12	254	4	253	57	253	49	253	41
17	255	52	255	46	255	39	255	33	255	26	255	19	255	12	255	5	154	58	254	51
18	256	57	256	51	256	45	256	39	256	33	256	27	256	20	256	14	256	7	256	0
19	258	2	257	56	257	51	257	45	257	40	257	34	257	28	257	22	257	16	257	10
20	259	7	259	2	258	57	258	52	258	47	258	41	258	36	258	30	258	25	258	20
21	260	12	260	8	260	3	259	59	259	54	259	49	259	44	259	39	259	34	259	30
22	261	17	261	13	261	9	261	5	261	1	260	56	260	52	260	48	260	43	260	40
23	262	22	262	18	262	15	262	11	262	8	262	4	262	0	261	57	261	52	261	50
24	263	28	263	24	263	21	263	18	263	15	263	12	263	9	263	6	263	2	263	0
25	264	33	264	30	264	27	264	25	264	22	264	20	264	17	264	15	264	11	264	10
26	265	38	265	36	265	33	265	32	265	29	265	28	265	26	265	24	265	21	265	20
27	266	44	266	42	266	40	266	39	266	37	266	36	266	34	256	33	266	31	266	30
28	267	49	267	48	267	46	267	46	267	44	267	44	267	43	267	42	267	40	267	40
29	268	55	268	54	268	53	268	53	268	52	268	52	268	52	268	51	268	50	268	50
30	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♑	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0
1	271	5	271	5	271	5	271	4	271	4	271	3	271	3	271	2	271	2	271	1
2	272	11	272	10	272	10	272	8	272	8	272	6	272	6	272	4	272	4	272	3
3	273	16	273	15	273	14	273	12	273	11	273	9	273	8	273	6	273	5	273	4
4	274	22	274	20	274	19	274	16	274	15	274	12	274	11	274	8	274	7	274	6
5	275	27	275	25	275	23	275	20	275	18	275	15	275	13	275	10	275	9	275	7
6	276	32	276	30	276	[illegible]	276	24	276	21	276	18	276	15	276	12	276	10	276	8
7	277	38	277	35	277	31	277	28	277	25	277	21	277	18	277	14	277	12	277	10
8	278	43	278	39	278	35	278	32	278	28	278	24	278	20	278	16	278	13	278	11
9	279	48	279	43	279	39	279	35	279	31	279	26	279	22	279	18	279	14	279	12
10	280	53	280	48	280	43	280	39	280	34	280	29	280	25	280	20	280	16	280	13
11	281	58	281	53	281	47	281	42	281	37	281	32	281	27	281	22	281	17	281	14
12	283	3	282	57	282	51	282	45	282	40	282	34	282	29	282	23	282	19	282	15
13	284	8	284	2	283	55	283	49	283	43	283	37	283	31	283	25	283	20	283	15
14	285	13	285	6	284	59	284	53	284	46	284	40	284	33	284	27	284	21	284	16
15	286	17	286	10	286	3	285	56	285	49	285	42	285	35	285	28	285	22	285	16
16	287	22	287	14	287	7	286	59	286	52	286	45	286	37	286	30	286	23	286	16
17	288	26	288	18	288	11	288	2	287	55	287	47	287	39	287	32	287	24	287	17
18	289	31	289	22	289	14	289	5	288	57	288	49	288	41	288	33	288	25	288	17
19	290	35	290	26	290	17	290	8	290	0	289	51	289	43	289	34	289	26	289	17
20	291	39	291	30	291	20	291	11	291	2	290	53	290	44	290	35	290	27	290	17
21	292	43	292	33	292	23	292	13	292	4	291	55	291	45	291	36	291	28	291	17
22	293	47	293	37	293	26	293	16	293	6	292	56	292	47	292	37	292	28	292	17
23	294	51	294	40	294	29	294	19	294	8	293	58	293	48	293	38	293	28	293	17
24	295	54	295	43	295	32	295	21	295	10	294	59	294	49	294	38	294	28	294	17
25	296	57	296	46	296	35	296	23	296	12	296	1	295	50	295	39	295	28	295	17
26	298	1	297	49	297	37	297	25	297	14	297	2	296	51	296	39	296	28	296	17
27	299	4	298	51	298	39	298	27	298	15	298	3	297	51	297	39	297	28	297	16
28	300	7	299	54	299	41	299	29	299	16	299	4	298	52	298	40	298	28	298	16
29	301	9	300	56	300	43	300	50	300	17	300	5	299	53	299	40	299	28	299	16
30	302	12	301	58	301	45	301	31	301	18	301	5	300	53	300	40	300	28	300	16

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♑	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0
1	271	5	271	6	271	7	271	7	271	8	271	8	271	9	271	9	271	10	271	10
2	272	11	272	12	272	14	272	15	272	16	272	16	272	18	272	18	272	20	272	20
3	273	16	273	18	273	20	273	23	273	23	273	24	273	26	273	27	273	29	273	30
4	274	22	274	24	274	26	274	31	274	31	274	32	274	34	274	36	274	39	274	40
5	275	27	275	30	275	33	275	38	275	38	275	40	275	43	275	45	275	48	275	50
6	276	32	276	36	276	39	276	45	276	45	276	48	276	51	276	54	276	58	277	0
7	277	38	277	41	277	45	277	52	277	52	277	56	278	0	278	3	278	7	278	10
8	278	43	278	47	278	51	278	99	278	59	279	4	279	8	279	12	279	17	279	20
9	279	48	279	52	279	57	280	6	280	6	280	11	280	16	280	21	280	26	280	30
10	280	53	280	58	281	3	281	13	281	13	281	19	281	24	281	30	281	35	281	40
11	281	58	282	4	282	9	282	20	282	20	282	26	282	32	282	38	282	44	282	50
12	283	3	283	9	283	15	283	27	283	27	283	33	283	40	283	46	283	53	283	59
13	284	8	284	14	284	21	284	34	284	34	284	41	284	48	284	55	285	2	285	9
14	285	13	285	19	285	27	285	41	285	41	285	48	285	56	286	3	286	11	286	19
15	286	17	286	24	286	32	286	47	286	47	286	55	287	3	287	11	287	19	287	28
16	287	22	287	29	287	38	287	54	287	54	288	2	288	11	288	19	288	28	288	37
17	288	26	288	34	288	43	289	0	289	0	289	9	289	18	289	27	289	36	289	45
18	289	31	289	39	289	48	290	6	290	6	290	15	290	25	290	34	290	44	290	54
19	290	35	290	44	290	53	291	12	291	12	291	22	291	32	291	42	291	52	292	2
20	291	39	291	49	291	58	292	18	292	18	292	29	292	39	292	50	293	0	293	11
21	292	43	292	53	293	3	293	24	293	24	293	35	293	46	293	57	294	8	294	19
22	293	47	293	57	294	8	294	30	294	30	294	41	294	52	295	4	295	15	295	27
23	294	51	295	1	295	13	295	35	295	35	295	47	295	58	296	10	296	22	296	35
24	295	54	296	5	296	17	296	40	296	40	296	53	297	4	297	16	297	29	297	42
25	296	57	297	9	297	21	297	45	297	45	297	58	298	10	298	23	298	36	298	50
26	298	1	298	13	298	25	298	50	298	50	299	3	299	16	299	29	299	43	299	57
27	299	4	299	16	299	29	299	55	299	55	300	8	300	22	300	35	300	49	301	4
28	300	7	300	19	300	33	300	59	300	59	301	13	301	27	301	41	301	55	302	10
29	301	9	301	22	301	36	301	3	302	3	302	18	302	32	302	47	303	1	303	16
30	302	12	302	25	302	39	302	7	303	7	303	22	303	37	303	52	304	7	304	22

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♒	D.	M.	D.	M.	D.	M.	D.	M	D.	M.	D.	M.	D.	M.	D.	M	D.	M.	D.	M.
0	302	12	301	58	301	45	301	31	301	18	301	5	300	53	300	40	300	28	300	16
1	303	14	303	0	302	47	302	33	302	19	302	6	301	53	301	40	301	28	301	15
2	304	16	304	2	303	48	303	34	303	20	303	6	302	53	302	40	302	27	302	14
3	305	18	305	3	304	50	304	35	304	21	304	7	303	53	303	39	303	26	303	13
4	306	20	306	5	305	51	305	36	305	22	305	7	304	53	304	39	304	25	304	12
5	307	22	307	7	306	52	306	36	306	22	306	7	305	52	305	38	305	24	305	10
6	308	24	308	8	307	53	307	37	307	22	307	7	306	52	306	37	306	23	306	9
7	309	25	309	9	308	54	308	37	308	22	308	7	307	51	307	36	307	22	307	7
8	310	26	310	10	309	54	309	37	309	22	309	6	308	50	308	35	308	20	308	5
9	311	27	311	10	310	54	310	37	310	21	310	5	309	49	309	33	309	18	309	3
10	312	28	312	11	311	54	311	37	311	21	311	4	310	48	310	32	310	17	310	1
11	313	28	313	11	312	54	312	37	312	20	312	3	311	47	311	31	311	15	310	59
12	314	29	514	11	313	54	313	37	313	19	313	2	312	46	312	29	312	13	311	57
13	315	29	315	11	314	54	314	36	314	18	314	1	313	45	313	27	313	11	312	54
14	316	29	316	11	315	53	315	35	315	17	315	0	314	43	314	25	314	9	313	52
15	317	29	317	10	316	52	316	34	316	16	315	58	315	41	315	23	315	6	314	50
16	318	29	318	10	317	51	317	33	317	15	316	57	316	39	316	21	316	4	315	47
17	319	28	319	9	318	50	318	32	318	14	317	55	317	37	317	19	317	2	316	44
18	320	27	320	8	319	49	319	30	319	12	318	53	318	35	318	17	317	59	317	41
19	321	27	321	7	320	48	320	29	320	10	319	51	319	33	319	15	318	56	318	38
20	322	26	322	6	321	47	321	27	321	8	320	49	320	31	320	12	319	53	319	35
21	323	25	323	4	322	45	322	25	322	6	321	47	321	28	321	9	320	50	320	31
22	324	23	324	3	323	43	323	23	323	4	322	45	322	25	322	6	521	47	321	28
23	325	22	325	1	324	41	324	21	324	1	323	42	323	22	323	3	322	44	322	24
24	326	20	325	59	325	39	325	19	324	59	324	39	324	19	323	59	323	40	323	21
25	327	18	326	57	326	37	326	17	325	56	325	36	325	16	324	56	324	37	324	17
26	328	16	327	55	327	35	327	14	326	53	326	33	326	13	325	53	325	33	325	13
27	329	14	328	53	328	32	328	11	327	50	327	30	327	10	326	49	326	29	326	9
28	330	11	329	50	329	29	329	8	328	47	328	27	328	6	327	46	327	25	327	5
29	331	9	330	47	330	26	330	5	329	44	329	25	329	3	328	42	328	21	328	1
30	332	6	331	44	331	23	331	2	330	41	330	20	329	59	329	38	329	17	328	56

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♒	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	302	12	302	25	302	39	302	53	303	7	303	22	303	37	303	52	304	7	304	22
1	303	14	303	28	303	42	303	57	304	11	304	26	304	42	304	57	305	12	305	28
2	304	16	304	31	304	45	305	0	305	15	305	30	305	46	306	2	306	17	306	33
3	305	18	305	33	305	48	306	3	306	18	306	34	306	50	307	7	307	22	307	38
4	306	20	306	36	306	51	307	6	307	22	307	38	307	54	308	11	308	27	308	43
5	307	22	307	38	307	54	308	9	308	25	308	42	308	58	309	15	309	32	309	48
6	308	24	308	40	308	56	309	12	309	28	309	45	310	2	310	19	310	36	310	53
7	309	25	309	42	309	58	310	14	310	31	310	48	311	5	311	23	311	40	311	57
8	310	26	310	43	311	0	311	16	311	33	311	51	312	8	312	26	312	44	313	1
9	311	27	311	44	312	1	312	18	312	35	312	53	313	11	313	29	313	47	314	5
10	312	28	312	45	313	2	313	20	313	37	313	55	314	14	314	32	314	50	315	8
11	313	28	313	46	314	3	314	21	314	39	314	57	315	16	215	35	315	53	316	11
12	314	29	314	46	315	4	315	22	315	40	315	59	316	18	316	37	316	56	317	14
13	315	29	315	47	316	5	316	23	316	41	317	0	317	20	317	39	317	58	318	17
14	316	29	316	47	317	6	317	24	317	42	318	1	318	21	318	41	319	0	319	19
15	317	29	317	47	718	6	318	24	318	43	319	2	319	22	319	42	320	2	320	22
16	318	29	318	47	319	6	319	25	319	44	320	3	320	24	320	44	221	4	321	24
17	319	28	319	47	320	6	320	25	320	45	321	4	321	25	321	45	322	6	322	26
18	320	27	320	46	321	6	321	25	321	45	322	5	322	26	322	46	323	7	323	28
19	321	27	321	46	322	6	322	25	322	45	323	6	323	27	323	47	324	8	324	29
20	322	26	322	45	323	4	323	25	323	45	324	6	324	27	524	48	325	9	325	30
21	323	25	323	44	324	5	324	24	324	45	325	6	325	27	325	48	326	9	326	31
22	324	23	324	43	325	3	325	24	325	45	326	6	326	27	326	48	327	10	327	31
23	325	22	325	42	326	2	326	23	326	44	327	5	327	27	327	48	328	10	528	31
24	326	20	326	40	327	0	327	22	327	43	328	4	328	26	328	48	329	10	329	31
25	327	18	327	39	328	1	328	21	328	42	329	3	329	25	329	47	330	10	330	31
26	328	16	328	37	328	58	329	19	329	41	330	2	330	24	330	46	331	9	331	30
27	329	14	329	35	329	56	330	17	330	39	331	1	331	23	331	45	332	8	332	30
28	330	11	330	33	330	54	331	15	331	37	331	59	332	22	332	44	333	7	333	29
29	331	9	331	30	331	52	332	13	332	35	332	57	333	20	333	43	334	6	334	28
30	332	6	332	27	332	49	333	11	333	33	333	55	334	18	334	41	335	4	335	27

North Latitude.

	0		1		2		3		4		5		6		7		8		9	
♓	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	332	6	331	41	331	23	331	2	330	41	330	20	329	59	329	38	329	17	328	56
1	333	4	332	41	332	20	331	59	331	38	331	16	330	55	330	34	330	13	329	52
2	334	11	333	38	333	17	332	55	332	34	332	12	331	51	331	30	331	9	330	47
3	334	58	334	35	334	13	333	51	333	30	333	8	332	47	332	25	332	4	331	42
4	335	55	335	32	335	10	334	48	334	26	334	4	333	43	333	21	333	0	332	37
5	336	51	336	29	336	7	335	44	335	22	335	0	334	39	334	17	333	55	333	32
6	337	48	337	25	337	3	336	40	336	18	335	5	335	34	335	12	334	50	334	27
7	338	44	338	22	337	59	337	36	337	14	336	52	336	30	336	8	335	46	335	22
8	339	40	339	18	338	55	338	32	338	10	337	48	337	26	337	3	336	41	336	17
9	340	37	340	14	339	51	339	28	339	6	338	43	338	21	337	58	337	36	337	12
10	341	33	341	10	340	47	340	24	340	2	339	39	339	17	338	54	338	31	338	7
11	342	29	342	6	341	43	341	2	340	58	340	35	340	12	339	49	339	26	339	2
12	343	25	343	2	342	39	342	16	341	53	341	30	341	7	340	44	340	21	339	57
13	344	20	343	58	343	35	343	12	342	49	342	25	342	2	341	39	341	16	340	32
14	345	16	344	53	344	30	344	7	343	44	343	20	342	57	342	34	342	11	341	48
15	346	12	345	48	345	25	345	2	344	39	344	15	343	52	343	29	343	6	342	43
16	347	7	346	44	346	21	345	57	345	34	345	10	344	47	344	24	344	1	343	38
17	348	3	347	40	347	17	346	52	346	29	346	5	345	42	345	19	344	56	344	33
18	348	58	348	35	348	12	347	47	347	24	347	0	346	37	346	13	345	51	345	28
19	349	54	349	31	349	7	348	43	348	19	347	55	347	32	347	8	346	46	346	23
20	350	49	350	26	350	3	349	38	349	14	348	50	348	27	348	3	347	41	347	19
21	351	44	351	21	350	57	350	33	350	9	349	45	349	22	348	58	348	36	348	14
22	352	39	352	16	351	52	351	28	351	4	350	40	350	17	349	53	349	30	349	9
23	353	35	253	11	352	47	252	23	351	59	351	35	351	12	350	48	350	25	350	4
24	354	30	354	6	353	42	353	18	352	51	352	30	352	7	351	43	351	20	350	59
25	355	25	355	1	354	38	354	14	353	50	353	26	353	2	352	38	352	15	351	53
26	356	20	355	57	355	33	355	9	354	45	354	21	353	57	353	33	353	10	352	49
27	357	15	356	52	356	28	356	4	355	4	355	16	354	52	354	28	354	4	353	42
28	358	10	357	47	357	23	356	59	356	35	356	11	355	47	355	23	354	59	354	36
29	359	5	358	42	358	18	357	54	357	30	357	6	356	42	356	18	355	54	355	30
30	360	0	359	37	359	13	358	49	358	25	358	1	357	37	357	13	356	58	356	24

South Latitude.

	0		1		2		3		4		5		6		7		8		9	
♓	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.
0	332	6	332	28	332	49	333	11	333	33	333	55	334	18	334	41	335	4	335	27
1	333	4	333	25	333	47	334	9	334	31	334	53	335	16	335	39	336	3	336	26
2	334	1	334	22	334	44	335	6	335	29	335	51	336	14	336	37	337	1	337	25
3	334	58	335	19	335	41	336	3	336	26	336	49	337	12	337	35	337	59	338	23
4	335	55	336	16	336	39	337	1	337	24	337	47	338	10	338	33	338	57	339	21
5	336	51	337	13	337	36	337	58	338	21	338	44	339	8	339	31	339	55	340	18
6	337	48	338	10	338	33	338	55	339	18	339	41	340	5	340	28	340	52	341	16
7	338	44	339	7	339	30	339	52	340	15	340	38	341	2	341	25	341	49	342	13
8	339	40	340	4	340	27	340	49	341	12	341	35	341	59	342	22	342	46	343	10
9	340	37	341	0	341	23	341	46	342	9	342	32	342	56	343	19	343	43	344	7
10	341	33	341	56	342	19	342	42	343	6	343	29	343	53	344	16	344	40	345	4
11	342	29	342	52	343	15	343	38	344	2	344	25	344	49	345	13	345	37	346	1
12	343	25	343	48	344	11	344	34	344	58	345	21	345	45	346	9	346	33	346	58
13	344	20	344	44	345	7	345	30	345	54	346	18	346	42	347	6	347	30	347	54
14	345	16	345	40	346	3	346	26	346	50	347	14	347	38	348	2	348	26	348	50
15	346	12	346	35	346	59	347	22	347	46	348	10	348	34	348	58	349	22	349	46
16	347	7	347	31	347	55	348	18	348	42	349	6	349	30	349	54	350	18	350	42
17	348	3	348	27	348	51	349	14	349	38	350	2	350	26	350	50	351	14	351	38
18	348	58	349	22	349	46	250	9	350	33	350	57	351	21	351	45	352	9	352	33
19	349	54	350	18	350	42	351	5	351	29	351	53	352	17	352	41	353	5	353	29
20	350	49	351	13	351	37	352	1	352	25	352	49	353	13	353	37	354	1	354	24
21	351	44	352	8	352	32	352	56	353	20	353	44	354	8	354	32	354	56	355	20
22	352	39	353	3	353	27	353	51	354	15	354	39	355	3	355	27	355	51	356	15
23	353	35	353	58	354	22	354	46	355	10	355	34	355	58	356	22	356	46	357	10
24	354	30	354	53	355	17	355	41	356	5	356	29	356	53	357	17	357	41	358	6
25	355	25	355	48	356	12	356	36	357	0	357	24	357	48	358	12	348	36	359	1
26	356	20	356	43	357	7	357	31	357	55	358	19	358	43	359	7	359	31	359	56
27	357	15	357	38	358	2	358	26	358	50	359	14	359	38	0	2	0	26	9	52
28	358	10	358	33	358	57	359	21	359	45	0	9	0	32	0	57	1	22	1	47
29	359	5	359	28	359	52	0	16	0	40	1	4	1	28	1	52	2	17	2	42
30	360	0	0	23	0	47	1	11	1	35	1	59	1	23	2	47	3	12	3	37

THE END.

21 . 31

186 . 147

37 . 20 . 37

66 . 65

13 . 56

52 . 157

6/16 . 30
16 . 11

51 . 19

76
38

19

53

3/67 . 30
22 . 30

37 . 30

39

16
48 . 57 8
19 . 29
29

13 . 10
10 . 26

2 . 14

6 . 200

3100 . 5

85
48 . 29

46 . 31

3/95

57 . 40
40 . 32

16 . 8

57 . 40
9 . 11

43

16 58
1 49

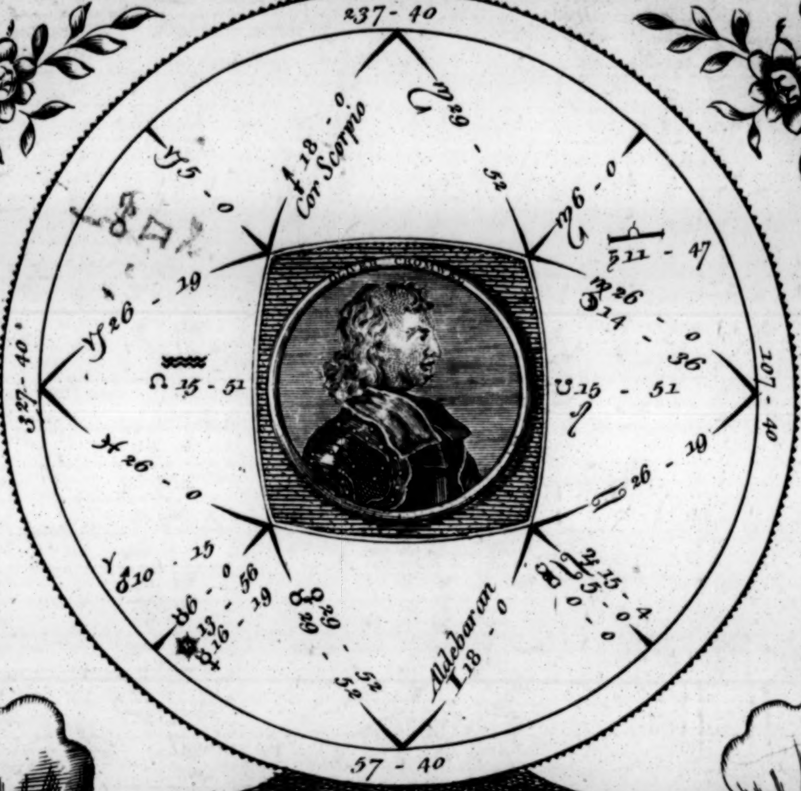
59

13 . 41

85
48

37

7 MA 63



Longitude		♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	Latitude	
♂	10 - 25	♂		⚹	□	△		☍		△	□	⚹		1 - 4 S	♂
♄	11 - 47	☍		△	□	⚹		♄		⚹	□	△		2 - 54 N	♄
☉	13 - 55		☉		⚹	□	△		☍		△	□	⚹	0 - 0	☉
☽	14 - 36		△	□	⚹		☽		⚹	□	△		☍	2 - 31 S	☽
♃	15 - 4	□	⚹		♃		⚹	□	△		☍		△	0 - 24 N	♃
☿	16 - 19		☿		⚹	□	△		☍		△	□	⚹	0 - 18 N	☿
♀	29 - 52		♀		⚹	□	△		☍		△	□	⚹	0 - 29 N	♀

Born at Huntington 25th April 4 H. 24 M. 4 sec. 1599 Died Sept. 4 1658.

E. Sibly Delin

38 16
31 22
7 54

69.38

72 44

21.51
22 20
1 11

~~14~~
72.44
39.14

94.35
72 44
21 51

31.38
21.57
22 41
1

44

31
21.51
9.47
D
0.8

~~44~~
76.14
29 8

31.36
47
9
31 /22
0.12
9.38
69.19
49.41
12

BRITISH
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MUSEUM

Astral Speculum

	Planets Latitude	Right Ascention no Latitude	Right Ascention with Latitude	Declination with Latitude	Daily Motions Mean	Daily Motions Present
	° ′ L	° ′	° ′	° ′ D		° ′ ″
♄	2 - 54 - N	190 - 50	192 - 4	2 - 0 - S	0.2.1	0 - 3 - 0
♃	0 - 24 - N	106 - 27	106 - 23	22 - 24 - N	0.4.59	0 - 7 - 0
♂	1 - 4 - S	9 - 34	9 - 59	3 - 9 - N	0.31.27	0 - 46 - 0
☉	0 - 0 - —	41 - 26	00 - 00	16 - 5 - N	0.59 - 8	0 - 58 - 1
♀	0 - 29 - N	57 - 40	57 - 26	20 - 41 - N	0 - 59 - 8	1 - 14 - 0
☿	0 - 18 - N	43 - 50	43 - 45	17 - 4 - N	0 - 59 - 8	2 - 10 - 0
☽	2 - 31 - S	165 - 50	164 - 52	3 - 47 - N	13 - 10.35	12 - 12 - 0
☊		90 - 0		3 - 47 - N	13 - 10 - 35	12 - 12 - 0
	Space of one House	**Distance from 10 & 4 Dom**	**Antiscions or Zodiacal Parellels**		**Pole**	**Part Proportional to Cusp of Seventh**
	° ′	° ′	° ′ S S	S S ° ′	° ′	° ′ ″
♄	30 - 52	45 - 36	5 - 2 ♈ ♎	♍ ♓ 24 - 58	33 - 20	♄ 0.7.0
♃	19 - 12	48 - 43	10 - 48 ♋ ♑	♊ ♐ 19 - 12	47 - 28	♃ 0.0.0
♂	28 - 38	47 - 41	7 - 55 ♈ ♎	♍ ♓ 22 - 5	30 - 2	♂ 0.19.0
☉	22 - 41	16 - 14	13 - 57 ♉ ♏	♌ ♒ 16 - 3	17 - 16	☉ 0.32.0
♀	20 - 14	0 - 14	2 - 10 ♊ ♐	♋ ♑ 27 - 50	0 - 17	♀ 0.0 - 30
☿	22 - 10	13 - 55	20 - 56 ♉ ♏	♌ ♒ 9 - 4	15 - 9	☿ 0.42.0
☽	31 - 38	72 - 48	20 - 31 ♍ ♓	♈ ♎ 9 - 29	44 - 56	☽ 0.0.0
☊	28 - 22	32 - 20				
	Semidiurnial Half Arch	**Degrees of Half Arch**	**Logarithm**	**Degrees of Nocturnal Arch**	**Semi Nocturnal Arch**	**Logarithm**
	H m	° ′	of Hours	° ′	H m	of Hours
♄	6 - 10	92 - 36	5902	87 - 24	5 - 50	6143
♃	8 - 10	122 - 24	4682	57 - 36	3 - 50	7966
♂	6 - 16	94 - 5	5832	85 - 55	5 - 44	6278
☉	7 - 28	111 - 58	5071	68 - 2	4 - 32	7238
♀	7 - 57	119 - 19	4797	60 - 41	4 - 3	7724
☿	7 - 34	113 - 30	5013	66 - 30	4 - 26	7335
☽	6 - 20	94 - 55	5786	85 - 5	5 - 40	6269
⊗	5 - 40	85 - 5	6269	94 - 55	6 - 20	5786
	Testimonies of Tempreture	**Dignities**	**Debilities**	**Terms**	**Face**	**Pole of the Houses**
♄	Hot - 10	22	10	♃	♄	H. D. M
♃	Dry - 12	17	4	☿	☿	1st 52 - 22
♂	Cold - 8	22	6	☿	☉	2d 41 - 44
☉	Moist - 11	4	7	☿	☽	3d 24 - 8
♀	Hot & Dry	27	1	♂	♄	4th 0 - 0
☿	Prevalent by	18	5	♃	☽	5th 24 - 8
☽	2 Testimonies	23	4	♃	♀	6th 41 - 44

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MUSEUM

A TABLE OF DIRECTIONS

in this Nativity *with the several Arks thereof the measure of time agreeing to each of them & the Year when they began to take Effect*

Nomina Directionum	*Arcus Directi-*	*Mensur num Directio-*	*Anno Domini*	
	o	y — M		
☉ to ⚹ of ♃ in the Zodiac	1 - 0	1 - 0	1600	
☽ to ⚹ of ♃ in the Zodiac with Latitude	1 - 13	1 - 3	1600	
☽ to △ of ☿ in Zodiac with Latitude	1 - 52	1 - 11	1601	
☉ to ☌ of ☿	2 - 8	2 - 2	1601	
☽ in Mundane Parellel of ♃ D. D	4 - 40	4 - 9	1603	
☉ to □ ♃ in Mundo D. D	4 - 54	5 - 1	1604	
☉ to Sesquiquardrate ♄ in Mundo	6 - 5	6 - 7	1605	
☉ to Parellel of ☿ in Zodiac	6 - 23	6 - 7	1605	
☽ to Parellel of ♄ in Zodiac	6 - 25	6 - 7	1605	
⊗ to Parellel of ♄ in Zodiac	6 - 25	6 - 7	1605	✓
Ascendent to ⚹ of ☉	6 - 27	6 - 8	1605	
☽ to Semiquar ♃ in Mundo D. D	6 - 38	6 - 10	1606	
☽ to Parellel of ♂ in Zodiac	7 - 16	7 - 5	1606	
⊗ in Parellel of ♂ in Zodiac	7 - 16	7 - 5	1606	
☉ to the Pleides with Latitude	7 - 43	7 - 11	1607	
☽ to △ of ♀ in Zodiac with Latitude	7 - 43	7 - 11	1607	
⊗ to Parellel of ♂ in Mundo D. D	7 - 48	8 - 0	1607	
⊗ to □ of ☉ in Mundo D. D	7 - 57	8 - 1	1607	+
☽ to her own Parellel in Zodiac	8 - 5	8 - 3	1607	
⊗ to the Parellel of the ☽ in Zodiao	8 - 5	8 - 3	1607	
☽ to △ ☿ in Mundo Converse Dix	9 - 14	9 - 5	1608	
Midheaven to the △ of ♂	9 - 30	9 - 8	1608	
☉ to Pleides Sine Latitude	10 - 9	10 - 4	1609	
Midheaven to △ of ♃	10 - 26	10 - 7	1609	
⊗ in Parellel of ♄ in Mundo D. D	10 - 29	10 - 8	1609	
⊗ in △ of ♂ in Mundo D. D	11 - 12	11 - 5	1610	
⊗ in ☌ of ♃ Direct Direction	11 - 37	11 - 10	1611	

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A TABLE OF DIRECTIONS

in this Nativity *with the several Arks thereof the measure of time agreeing to each of them & the Year when they began to take Effect*

Nomina Directionum	*Arcus Directi*	*Mensur num Directio*	*Anno Domin*
	°	y — m	
☽ *to* ☍ *of* ♂ *in Zodiac with Latitude*	12 - 11	12 - 5	1611
Midheaven to ✶ *of* ♄	12 - 13	12 - 5	1611
☽ *to* ☌ *of* ♄ *in Zodiac with Latitude*	12 - 52	13 - 1	1612
☉ *to* ☌ *of* ♀ *in Zodiac*	14 - 48	15 - 1	1614
☽ *to* ✶ ♃ *in Mundo D. D*	16 - 13	16 - 7	1616
☽ *to Spica Virgina with Latitude*	16 - 24	16 - 9	1616
☉ *to Quintile of* ♃ *in Mundo D. D*	16 - 25	16 - 9	1616
☉ *to Parellel of* ♀ *in Zodiac*	16 - 57	17 - 2	1616
Ascendent to Semequardrate of ☉	17 - 52	18 - 1	1617
☉ *to* ✶ *of* ♂ *in Zodiac in Par of Twilight*	17 - 43	18 - 0	1617
☉ *to* △ ♄ *in Zodiac by Corpusculine* △	18 - 51	18 - 1	1618
☉ *to the Rapt Parellel of* ♃	19 - 27	18 - 9	1619
Ascendent to Semiquardrate of ☿	19 - 42	20 - 0	1619
☉ *to Aldebaran without Latitude*	19 - 43	20 - 0	1619
Ascendent to Semiquardrate of ♃	20 - 1	20 - 3	1619
Ascendent to ✶ *of* ♀	20 - 38	20 - 10	1620
☉ *to* △ ♄ *in Mundo D. D*	20 - 39	20 - 10	1620
☉ *to* □ *of* ☽ *in Zodiac by Corpusculane Arc*	21 - 16	21 - 7	1620
⊗ *in* □ *of* ♀ *in Mundo D. D*	21 - 35	22 - 0	1621
Ascendent to ☍ *of* ☽	22 - 2	22 - 6	1621
Midheaven to □ *of* ☽	22 - 2	22 - 6	1621
☉ *to* ☌ *of* ♂ *in Mundo*	22 - 15	22 - 9	1622
☉ *to Aldebaran with Latitude*	22 - 42	23 - 2	1622
☽ *to Quintile* ♃ *in Mundo D. D*	23 - 55	24 - 5	1623
☉ *to* ✶ *of* ♃ *in Mundo D. D*	24 - 9	24 - 8	1624
☽ *to Parellel of* ☿ *in Zodiac*	24 - 47	25 - 4	1624
⊗ *to Parellel of* ☿ *in Zodiac*	24 - 47	25 - 4	1624

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A TABLE OF DIRECTIONS

in this **Nativity** *with the several Arks thereof, the measure of time agreeing to each of them, and the Year when they began to take Effect*

Nomina Directionum	*Arcus Directi*	*Mensura num Directio*	*Anno Domini*
	°	y — M	
⊗ *to Sesquiquardarts ♂ in Mundo DD*	25 - 31	26 - 0	1625
☽ *to ssq ♂ in Mundo conv Motion*	26 - 44	27 - 0	1626
⊗ *to Parellel of ☉ D D*	27 - 58	28 - 3	1627
☽ *to Semiqartale ♄ in Mundo C M*	28 - 45	29 - 0	1628
Midhaven to △ of ☉	29 - 17	29 - 7	1628
☉ *to ✱ of ♀ in Mundo conv Motion*	29 - 27	29 - 9	1629
Ascendent to △ of ♃	29 - 36	29 - 11	1629
☽ *to Parellel of ☿ in Zodiac*	29 - 45	30 - 1	1629
⊗ *to Parellel of ☿ in Zodiac*	29 - 45	30 - 1	1629
☽ *to ☍ of ☉ with Latitude*	29 - 54	30 - 3	1629
☉ *to ✱ of ♂ in Mundo DD*	29 - 59	30 - 4	1629
☽ *to her own ✱ with Latitude*	30 - 20	30 - 8	1630
Ascendent to the Semiquantile of ♀	30 - 37	30 - 11	1630
Midhaven to △ of ☿	30 - 38	30 - 11	1630
☽ *to △ of ♃ in Zodiac with Latitude*	30 - 38	30 - 11	1630
⊗ *to △ of ☉ in Mundo DD*	30 - 47	31 - 1	1630
⊗ *to △ of ☿ in Mundo DD*	31 - 6	31 - 5	1631
☽ *to ☍ of ☿ in Zodiac with Latitude*	31 - 24	31 - 9	1631
☽ *to Parellel ♄ by Rapt Motion*	31 - 39	32 - 0	1631
☉ *to Semiquartile ♃ .... D D*	33 - 44	33 - 10	1633
☉ *to Parellel of ♃ in Mundo DD*	35 - 6	35 - 2	1634
☽ *to □ of ♃ in Mundo DD*	35 - 23	35 - 6	1634
⊗ *to Parellel ♃ in Zodiac*	35 - 24	35 - 6	1634
☉ *to the Rapt Parellel of ☽*	36 - 33	36 - 7	1635
Ascendent to ☌ of ♂	38 - 16	38 - 2	1637
Midhaven to □ of ♂	38 - 16	38 - 2	1637

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A TABLE OF DIRECTIONS
in this Nativity *with the several Arks thereof, the measure of time agreeing to each of them, and the Year when they began to take Effect*

Nomina Directionum	*Arcus Directi*	*Mensur num Directio*	*Anno Domini*
	°	y — M	
☽ *to Rapt Parellel of* ☿	38 - 30	38 - 5	1637
⊕ *to Parellel of* ♀ *in Mundo*	39 - 39	39 - 8	1638
⊕ *to Semiqurdrate* ♃ *DD*	40 - 22	40 - 3	1639
☽ *to* ☍ *of* ♀ *in Zodiac with Latitude*	40 - 46	40 - 8	1640
Midhaven to △ *of* ♀	40 - 52	40 - 9	1640
☽ *to* △ ♂ *in Mundo Converse Motion*	40 - 55	40 - 10	1640
Ascendent to ☍ *of* ♄	41 - 21	41 - 2	1640
Midhaven to □ *of* ♄	41 - 21	41 - 2	1640
☽ *to her own Parellel conv Motion*	41 - 47	41 - 8	1640
☉ *to Parellel of* ♃ *in Mundo Conv Motion*	41 - 48	41 - 8	1640
⊕ *to Sesquiquardrate* ☿ *in Mundo DD*	42 - 2	41 - 10	1641
⊕ *to* △ *of* ♀ *in Mundo DD*	42 - 5	41 - 11	1641
☉ *to* □ *of* ☽ *in Mundo DD*	42 - 12	42 - 0	1641
⊕ *to Sesquiquardrate of* ☉ *in Mundo*	42 - 12	42 - 0	1641
⊕ *to Cor Leonis DD*	43 - 41	43 - 6	1642
☽ *to* ✶ ♄ *in Mundo Conv Motion*	44 - 34	44 - 4	1643
☽ *to Rapt Parellel of* ♀	44 - 40	44 - 5	1643
☉ *to Semiquartile of* ♀ *in Mundo*	45 - 11	44 - 11	1644
☉ *to his own* ✶ *in Mundo Conv Motion*	45 - 31	45 - 3	1644
☽ *to Cor Scorpio in Zodiac with Latitude*	45 - 36	45 - 4	1644
☉ *to Parellel of* ♂ *Motion Rapt*	46 - 3	45 - 8	1645
☉ *to* ✶ *of* ☿ *in Mundo DD*	46 - 11	45 - 9	1645
Midhaven to ☍ *of* ♃	48 - 44	48 - 4	1647
Ascendent to □ *of* ♃	48 - 44	48 - 4	1647
☉ *to* □ *of* ♂ *in Zodiac by Corpuscaline*	48 - 27	47 - 10	1647
☉ *to Parellel of* ♃ *in Zodiac*	48 - 55	48 - 5	1647
⊕ *in* ✶ *of* ♃ *in Mundo DD*	49 - 57	49 - 6	1648
☉ *to* □ *of* ♄ *in Zodiac by Corpuscaline*	50 - 8	49 - 8	1648

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A TABLE OF DIRECTIONS

in this Nativity *with the several Arks thereof the measure of time agreeing to each of them. & the Year when they began to take Effect.*

Nomina Directionum	*Arcus Directi*	*Mensur Directio*	*Anno Domini*
	°	y — M	
Midheaven in △ of ☽	50 - 27	50 - 0	1649
☽ to △ ♂ in Zodiac with Latitude	50 - 39	50 - 2	1649
☽ to ⚹ of ♄ in Zodiac with Latitude	51 - 52	51 - 3	1650
⊗ to ☌ of ☽ D D	52 - 5	51 - 5	1650
Ascendent ☌ of ☉	52 - 9	51 - 6	1650
Midheaven to □ of ☉	52 - 9	51 - 6	1650
☉ to his own ⚹ in the Zodiac	52 - 49	52 - 8	1651
☉ to □ of ♀ in Mundo Converse Motion	52 - 17	51 - 8	1651
⊗ to Sesquiquardrate ♀ in Mundo D D.	52 - 20	51 - 9	1651
Ascendent to ☌ of ☿	52 - 30	51 - 11	1651
Midheaven to □ of ☿	52 - 30	51 - 11	1651
☽ to △ of ♃ in Mundo D D	54 - 33	53 - 11	1653
☉ to ⚹ ☽ in Zodiac by Corpusculine Arc	53 - 41	53 - 1	1652
☉ to ☌ of ♃ in Zodiac by Corpusculine	54 - 18	53 - 8	1653
☽ to her own □ in Zodiac with Latitude	54 - 46	54 - 1	1653
☉ to ⚹ of ♀ in Mundo D D	55 - 26	54 - 9	1654
☉ to ⚹ of ☿ in Zodiac	55 - 52	55 - 2	1654
☉ to Quintile of ☽ in Mundo D D	59 - 13	58 - 5	1657
☽ to Parellel of ♂ in Mundo Con M	59 - 56	59 - 2	1658
☉ to □ of ♂ in Mundo D D	60 - 34	59 - 9	1659
☽ to Mundane Parellel of ♄ D D	62 - 18	61 - 6	1661
☽ to Mundane Parellel of ♄ Conv Motion	62 - 51	62 - 0	1661
☉ to □ ♄ in Mundo D D	63 - 18	62 - 18	1661
☽ to □ ♄ in Mundo Conv Motion	66 - 56	66 - 0	1665
☽ to □ ♂ in Mundo Conv Motion	69 - 17	68 - 3	1667

[illegible] 39 35
@ 1/- 34 30
[illegible] 35 16
2d @ 1/- 30 —
[illegible] 122
92 0

16 15
105 45
122 0

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Rises 5 · 35 ~~[illegible]~~ ~~5 · 35~~ 3 21

Birth 3 15 @ 4' 2 · 4

2 · 20 ⊙ @ Arc 16 35

Rises 5 · 35 ⊙

Twilight 2 · 4 Arc

3 · 31 Obscure Arc

~~2 · 20~~

89

Birth 3 · 15

16' dis ⊙ fr Twilight

Arc or before the arch of the

Obscure Arc